

DR. HAROLD ST. JOHN

THE WATUMULL FOUNDATION ORAL HISTORY PROJECT

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(1892 -)

Dr. Harold St. John, professor emeritus since his retirement in 1958 as chairman of the Botany Department of the University of Hawaii, describes his New England background and education, culminating with a Ph.D. from Harvard University in 1917.

Following his World War I experiences in France, Dr. St. John returned to the Gray Herbarium at Harvard, then spent nine years at the then State College of Washington at Pullman, Washington, before moving to Hawaii in 1929.

After his retirement, Dr. St. John's teaching career extended to such far-ranging institutions as Chatham College in his native Pittsburgh, Pennsylvania, to the University of Cairo, as the recipient of a Fulbright Fellowship, and the Universities of Saigon and Hue, Vietnam.

Dr. St. John's late wife Elizabeth and his children travelled with him frequently on expeditions as near as Molokai and as distant as Mozambique. He shares many of these experiences during this series of interviews.

He has published over 400 articles and books, including the definitive text, List and Summary of the Flowering Plants of the Hawaiian Islands. Dr. St. John's worldwide work in identifying species of Pandanus is unequalled.

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INTERVIEW WITH DR. HAROLD ST. JOHN

At his office in the Bishop Museum

December 6, 1985

S: Dr. Harold St. John

A: Alice Sinesky, Interviewer

A: I am talking to Dr. Harold St. John this afternoon at his office in the Bishop Museum. Now Dr. St. John would like to start telling us a few stories.

S: Well, before I start giving any biographical material, I think I'd better state that there's another similar recorded set of interviews of my life story. It was started by one of my students, Alvin Chock, who had been at the University of Hawaii. He made a beginning on it and then moved away, was busy with other things and at my suggestion then turned the project over to Professor William Theobald at the University of Hawaii, a botanist, and he did a little for a year or two and then he moved away to another job, becoming director of a new botanical garden on Kauai. Eventually he persuaded me to go over there and talk for a recording to more or less complete the story; particularly with scientific emphasis rather than a strictly personal emphasis. And he recorded twenty-six hours of conversation.

A: Oh, my.

S: So there is a good deal of biographical material already on tape at the Pacific Tropical Botanical Garden on Kauai.

A: I see. Now that hasn't been included on any of the indexes that I was able to check, so we'll have a fresh start and let's make sure we're coming through here. (Checks tape)

S: My mother always maintained that I was born on the twenty-fifth of July. [1892] The official records of Allegheny County in that area say I was born on the twenty-fourth of July. The family doctor who made out the official records at the end of the month apparently figured, "Well, when was that St. John kid born? Oh, it was so and so." But he missed it by one day. I'm sure my mother was right. She was a very accurate person.

A: I'm sure she was. Especially on something like that.

S: My father was Charles Elliott E-L-L-I-O-T St. John. He was born in a log stockade fort at Prairie du Chien, Wisconsin, on the banks of the Mississippi, an Army fort, where his father was temporarily a post surgeon, although he had no medical training.

A: How did he get that job then?

S: Nobody else would do it so temporarily he was the post surgeon. My father actually grew up in Worcester, Massachusetts, and was educated at the public schools. And either because of natural inclination or because of stimulus from someone outside, he became a boy naturalist, particularly interested in birds. In his high school years he collected birds' eggs, blew them and saved them; birds' nests, in some cases, and also shot birds and stuffed them and made quite a collection of birds--migratory birds and resident birds of the Worcester region. Eventually, my brother and I turned that collection over to the Worcester Natural History Society and I believe it's still there.

Father had a young boyfriend, a year or two younger, who went along with him on trips, studying birds, an understudy in ornithology. He went on and became a professional ornithologist and became the state ornithologist of Massachusetts for many years, Mr. Edwin Forbush. Father went on and was educated at Harvard College, Cambridge, Massachusetts, and his courses were particularly directed towards natural history, zoology and botany, studying under Professors Asa Gray, George Goodale, Louis Agassiz, et al., and until he was a senior he expected to graduate and go into natural history. In his senior year he was persuaded by a professor of theology at Harvard that he would have great difficulty finding a job as a naturalist, which was true. There were few jobs in those days. But he could certainly get a position as a clergyman if he went on and took theological training, which he did.

But he had this strong background and interest and activity in natural history. For instance, one of the other branches that he paid attention to was the native ferns, and he made a collection of the ferns of Massachusetts and New England, all of the species that occurred there and he tried to get samples of the maximum, the largest size to which they grew. Well, some of those ferns were too big for an ordinary sheet of paper, so he got butcher's paper and made sheets five feet tall and two and a half feet wide and those ferns are mounted on those sheets which were later bound into a book. I eventually gave that to the herbarium at Harvard, the Gray Herbarium, and it's on file there. So he was not interested only in ferns or birds but--one point worth mentioning--he shot a pair of passenger pigeons and took

their nest and eggs and saved them. He didn't know at the time (he couldn't know) but that was the last record of a passenger pigeon in the state of Massachusetts. He shot the last pair.

A: Why did he shoot them?

S: Because he was building a collection of birds.

A: Oh, I see. As part of the collection.

S: It's a historic record. And eventually we gave them to the American Museum of Natural History in New York where Dr. Frank Chapman was the outstanding ornithologist in the country at that time. He also collected seashells. When he was convalescing, he was in Florida one winter for his health; he and his wife stayed on Sanibel Island which is off the west coast of Florida...

A: ... and very famous for its seashells.

S: Yes. Miles and miles of beach. And after every storm or high tide he would walk the beaches and he brought back boxes after boxes of seashells. We eventually gave those to the Dover Historical Society in Massachusetts.

When he graduated from Harvard Divinity School, he got a summer appointment at a small church in New Hampshire and preached and ran the affairs of the parish for the summer, and in the fall he got a more permanent appointment as Unitarian minister in Northampton, Massachusetts. When he got there, the parish committee didn't know what to do with him. He didn't know where he could live so they went to Miss Mary Lyman, who lived in a big house on Elm Street, the site where the front corner of Smith College Campus is now. She was alone: (her father, mother and sister having died within the year) and here she was alone in a big house, and people were worried about her so they decided it would be good to have the Reverend St. John move into her house with her. She objected: she didn't want to have anybody, but they finally persuaded her to try it for a month. So he moved in. She liked him very much and she was in the same parish and that arrangement lasted.

Well, one of the parishioners at his services was a young woman, Martha Elizabeth Everett, from Dover, Massachusetts, who entered as a freshman. And during that freshman year they told me that they fell in love, but they kept it a secret for three years and that nobody knew. I don't believe it myself. Two young folks can't be in love without it showing. (laughs)

- A: Why did they want to keep it a secret?
- S: They weren't ready to be married, and they didn't want fuss and furor about it.
- A: I'll bet a lot of people guessed. (laughter)
- S: Well, her best friend in the same dormitory said she didn't know it. But I don't believe it. Anyway, they were married in the week that she graduated from the college. One of the ways they saw each other--Miss Lyman became a conspirator and frequently she would invite Miss Everett to come to tea at her house on a free afternoon and, lo and behold, the Reverend Mr. St. John would drop in and join the tea and Miss Lyman would disappear. (laughs)
- A: So Miss Lyman was one who was in on the conspiracy. She knew.
- S: She knew. But it wasn't public knowledge. Well, my father stayed there until a year after their first child was born, Everett St. John.
- A: And what year was that?
- S: He was born in 1889. And in 1890 my father was offered a chance to go to a parish in Pittsburgh, Pennsylvania, to a Unitarian Church--which was an exaggeration. The church consisted of a committee of twelve people and six folding chairs. He went, accepted it as a challenge and proceeded to start to hold services and to try to raise money to build a church. Within the year he successfully persuaded twelve businessmen, the Fricks, the Mellons, et al., and all the rest of them, each of them to give \$1,000. None of them was a member of his group. But Father was a good enough talker and a good enough salesman to get a thousand dollars. (laughs)
- A: He must have been great to get it from some of those fellows.
- S: They were all Presbyterians and Pittsburgh was a Presbyterian town. Well, with that they built a wooden church and I remember it. Father built up a small, but very successful, growing church with a good many young men from Westinghouse Laboratories.
- A: In what area of Pittsburgh was that? Do you remember?
- S: I don't remember now. It was fairly close to downtown. We lived at 4608 Forbes Street.

- A: Oh, yes, that would be out around the Oakland area.
- S: Well, our homesite is now a gas station. There was a line of brick houses there. And that was only about two blocks from where the University of Pittsburgh is.
- A: Yes, that would be the Oakland area. Right. And you had your home right there, too?
- S: The Forbes street address. We lived two blocks out of town, further out, from the Carnegie Museum. And I remember the dinosaur. That is, they had the bones of a dinosaur, one of the first that had been dug up and preserved in the country, and I can still remember looking up at those bones.
- A: I think anybody who was a child in Pittsburgh probably remembers that dinosaur. It was most impressive. I think it's still there.
- S: Yes, it's still there. And they have some others. There was just one at that time. Now they have some fancy, scenery background paintings behind it.
- A: So you started as a very young child visiting Carnegie?
- S: Yes, and I started collecting plants by the age of six. Well, Father stayed from 1889 until 1900 with the church in Pittsburgh and left it with a good building, a good parish, a very thriving church. It has since grown and now has a big stone building, a very imposing structure, a thriving church. He was then offered a position as secretary to the American Unitarian Association, the headquarters group of the Unitarian Church, in Boston, and he accepted it. That was the number two position. They had a president, Reverend Mr. Elliot, and Father was number two. They had a big building right next to the State House on Beacon Street. He worked there as an office worker and also as a preacher: seldom did a Sunday pass without his being called to preach in some church in the vicinity. He also was sent out as a missionary on various trips and went as far as Portland, Oregon to help young, struggling churches.
- A: Well, he himself was fairly young at that point to have such a responsible position.
- S: Yes.
- A: What year was your Dad born?
- S: I don't have it in mind. He graduated from Harvard in 1879 and I can find out the year.

A: We can get that later.

S: He was probably twenty-one or twenty-two in 1879. He worked very hard and very vigorously at that position, and probably from overwork, became pretty much of an invalid suffering severely from asthma, and he finally gave up the position because he couldn't keep up the pace.

But he then took a parish, the First Unitarian Church in Philadelphia on Chestnut near Twenty-First Street, and he continued there as pastor in a church which had been divided by dissatisfaction with the previous minister. Half of the people supported the minister, half of them disliked him and eventually they got rid of him. So Father came into a divided church, but smoothed things over and brought people together and lost only one family from the church. And I attended the church there under him for three years. He was very spiritual, but very up to date, liberal-minded, and an interesting preacher, and for those three years I, as a child, was never bored although he was preaching to the adults. He was good.

A: He sounded as if he knew how to handle people beautifully, from the Presbyterians in Pittsburgh to the divided church.

S: Well, he became more and more of an invalid. He'd spend half of the week in bed, then get up and to to church and preach a splendid sermon and go back to bed. And eventually, I think it was in 1915 he died. You can check those dates in the older Who's Who. [It was 1916]

A: Now why don't you tell me what your mother was doing all those years.

S: Well, Mother grew up on a farm in the town of Dover, which is nineteen miles from Boston, Massachusetts, in Norfolk County. Her parents, George Draper Everett and Martha Allen Plummer, ran a farm. The Everetts had been in the town for a number of generations, at first when it was a subordinate parish of the town of Dedham. I remember we had one hayfield across the road that had been in the family since 1753. And there were other parts that they had owned. So they were old-time residents. Sara Plummer came from New Gloucester, Maine, and after schooling, got a job as school teacher in Dover and that's where she met young Mr. Everett and they got married. Mother was, I think, the third child in the family. The fourth child was a boy who was exploring in the store (they had added a country store to their farming activities and had the store for the town), and the young boy, George, got into some powder which was poisonous, ate enough of it and died.

A: How sad.

S: That broke the hearts of the parents and they gave up the store, but continued as farmers.

A: How old was the boy when this happened?

S: He was a small child. Well, my grandfather, George Draper Everett, was a good man, but not outstanding. He didn't have much to say. Besides running the farm he didn't do much, so he didn't leave a very strong impression. His wife, Martha, was a large, buxom, bustling, active woman, and was always a leader in any group that she was in. She was always head of the women's organization in the church, and when she finally retired from that they made her honorary president of their women's alliance, the only such office in the entire denomination.

She also became a school teacher. She taught in a country school, and eventually became superintendent of the schools in the town. I remember her telling with amusement that she had to make out a questionnaire for the state department of education. They wanted facts about the school and her and her salary and so on. And they wrote back after it was filed and said, "You said your salary as superintendent was \$40 a year. Didn't you mean \$400?" "No," she said, "I meant \$40." (laughs)

A: Forty dollars a year. Did they give her a raise, I hope?

S: No, that was normal in those times. Well, when some years later her husband died before she did, she was still vigorous and active so the next year she persuaded a ladyfriend of hers to go along, and the two of them went down to North Carolina and got jobs as school teachers in a country school in North Carolina where schooling was not very good. So they spent a year as teachers in North Carolina. Grandma was a go-getter.

A: She sounds like a very adventuresome lady for that period in time. Did she go back to New England after that?

S: Eventually she left the farm when she was enough of an invalid so that she moved in with Mother, and Mother took care of her in her later years. She was still alive when I was a graduate student at Harvard. They stayed in a boarding house near the college so they could be near me, and I'd go there once or twice a week and visit them.

Father, as I said, was the son of Thomas Elliott St. John, who was a New Englander but who wandered around. I'm sure he had no college education. For a time he was a wandering salesman of watches and then, as I said, became a

doctor, a medical man in the Army, left that after a year or two and went into the ministry. I don't know that he graduated from any theological school, but he was the minister of a large Congregationalist church in Worcester, Massachusetts. Then after my father graduated from Harvard Divinity School and became a Unitarian, my father converted his father from Congregationalism to Unitarianism. Father was a good talker. (laughs)

A: He must have been.

S: Grandfather then got a parish at Haverhill, Massachusetts, with a Unitarian Church where he stayed for several years; then took one with the Unitarian Church at Eastport, Maine. That is the northeasternmost town in Maine, right next to New Brunswick on the Bay of Fundy. And during my later grade school and earliest high school years, the family used to spend two months in the summer--one month with my mother's parents in Dover, Massachusetts, and the other month with father's parents in Eastport, Maine. And both of those gave opportunities for a boy naturalist to wander around and find flowers he'd never seen before and begin his collection. At first I collected only orchids, and the wild orchids of New England total about thirty species and some of them are beautiful plants, just beautiful, so you can see how a budding botanist could be interested in orchids. Then I took up the ferns, and it was some years before I collected everything. I studied everything, but it was some years before I saved and made specimens of all.

Thomas Elliott St. John was a great big man, six feet two, a hundred and ninety pounds, a very imposing, very nice man. I remember once my father said that if his father had spent more time at his ministry and less time at the Masonic Lodge of which he was a member, he would have been a more successful minister. (laughs) His parents, Thomas and his wife Henrietta, in their later years came down and lived with us in our home in Brookline, Massachusetts, which was our home while Father was working in Boston, so I got to know them in their older years quite well.

I remember Father brought home Science and Health said to have been written by Mrs. Eddy, the founder of Christian Science religion, and he read it and then his father, Thomas, read it and I can remember their uproarious laughter as they went over different passages in that text. (laughs) And Father said that the origin of the book was well known. He said it was written by a retired Unitarian minister in New Hampshire, never published, it drifted around, and Mrs. Eddy got hold of it and put it out as her product. Well, it's a religious text based on parts of the bible and it is now the Holy Book of the Christian Scientists.

Grandmother, Mrs. Thomas St. John, collected seaweeds. She'd find pretty little bits of kelp, seaweeds, mostly Red Algae, drifting around, float them out on white cards, dry them and they became quite attractive. Like many people, she also made paintings. (shows examples from his grandmother's collection)

A: Oh, how wonderful that you've been able to keep these.

S: Columbine, twin flower (*Linnaea borealis*), the favorite flower of Carolus Linnaeus in Sweden, the one who was the father of modern systematic botany, and I can remember my first contact with that plant. We were driving a pair of horses with a carriage and Father pulled up the horses and handed the reins to Mother and said, "I smell twin flower." And he took off through the woods and I followed him, and about twenty feet away was a patch of twin flower in flower and it has a strong and delightful perfume. It's a little plant with twin pink bells which hang down.

A: And he could detect that at twenty feet?

S: Twenty feet away--he's driving in a carriage--and recognized it. His mother's paintings included peaches, iris, fringed gentian. (still looking at paintings)

A: Aren't they lovely? Beautiful pansies.

S: She appreciated the beauty of nature, but you can't say she was a naturalist.

A: No, but there was that interest there definitely.

S: She liked and appreciated nature.

A: Oh, yes, and how wonderful that you still have these.

END OF TAPE 1/SIDE 1

S: And my parents bought me a popular book on the wildflowers of the northeast, Schuyler Matthews' Fieldbook of American Wildflowers. It was a splendid book and that was my bible. I don't have that book anymore because Mother eventually lent it to a friend and it never came back.

A: That's too bad.

S: We used to note in the margin the date and place where we'd seen a particular plant.

A: So your mother spent a lot of time with you? You just had one brother, Everett?

S: Well, no. Two or three years after I was born she had twin boys, but they died before they were a year old in Pittsburgh. Said to have been by milk sickness: that is, contaminated milk.

A: The mortality rate in those days, unfortunately, was about that, fifty percent. So your mother spent a lot of time with you and encouraged you.

S: Particularly in the summer time, but also other times when I skirmished around and found something.

A: At what point did you decide this was what you wanted to do not just as a hobby or an avocation, but this was what you wanted to do for the rest of your life.

S: Well, there was no one particular event. I'm not sure, but when I was a small boy in grade school, in Brookline, Massachusetts I came in contact with a boy who was a year or two older, in the same school, the Pierce grammar school in Brookline, a boy named Charles Schweinfurth and recently (he became quite a famous orchid specialist) they asked me to write a story of his youth. His professional career has been recorded, but nobody seemed to know anything about his youth. Well, I grew up with him and I've written that, so it's been submitted for publication. It hasn't been rejected, but it hasn't yet been printed. Now in that I tell my beginnings as an ornithologist with a group of boys in Brookline including Charles Schweinfurth, Joseph Kittredge, Jimmy Peters, and a few others, Dick Marble and some others. That boys' bird club was the first one in that part of Massachusetts. No adults paid any attention to birds. We published a little magazine. We kept migration lists and so on. We took ornithology seriously.

A: Did you band any birds in those days?

S: Did I what?

A: Did you band them?

S: No, that didn't come for many years. Well, during those years I discovered that I could see birds, I could recognize them, I could hear their songs, but if I saw and heard the song of a rare bird, a year later when I heard that same song I couldn't be sure that it was the one I'd heard a year before. My memory wasn't good enough. And that sort of memory was essential for a successful ornithologist.

A: It has to be that clearly defined?

S: (nods affirmatively) I very quickly realized that I'd better go for botany. (laughs) Anyway, there are only about 300 species of birds in the United States and at that time

there were probably 10,000 ornithologists, and now there are probably 200,000, all studying the 300 species of birds. Well, botany...there are probably 30,000 species of plants in the United States and many more in other countries, and all botanists have got plenty to work with.

It was a lot more promising field than ornithology, although ornithology is good, and so is mammalogy. I never paid any particular interest to entomology, bugs. I had no objection to bugs, but...well, I took one course in college on entomology not because I wanted to be an entomologist, but because the teacher was a very outstanding, a very wonderful man. William Morton Wheeler of the Bussey Institution was a marvelous man and I wanted to study under him and enjoyed it very much, but by the time I came to college I knew I was a botanist. I didn't know I could get a job as a botanist, but I knew I was a botanist.

I registered as a major in that and followed it on through. The first course in botany was given by a plant physiologist, W. J. V. Osterhout, who was a good man, and a teacher successful enough so that they brought him from Berkeley to Harvard to teach the elementary course, and I eventually took an advanced course under him in plant physiology and he was an excellent, inspiring teacher in physiology, but his introductory course was the most boring thing I ever sat through. It was horrible! So if I hadn't been a botanist, I wouldn't have gone on. But from then on I went ahead, and the next course I took was systematic botany from Professor Merritt L. Fernald and he became my major professor, a vivacious, inspiring scholar, explorer, a wonderful man.

I continued on through the four years as an undergraduate, and at the end of my junior year Professor Fernald arranged and financed and got permission to send me out to Sable Island in the summer. Now Sable Island lies 250 miles due east of Halifax, Nova Scotia. It's right out to sea. Sable Island at that time was twenty miles long and a mile broad, made entirely of sand dunes and sand flats and it was washing away. Every big storm washed some of it away. For instance, they had two lighthouses there. The one at the west end they had moved twelve miles to avoid it's being washed into the sea. Well, there had been one botanist there before. John Macoun had been there and collected plants. But the island is on the line of the terminal moraine of the Pleistocene glacier, from Newfoundland down to Cape Cod with the Grand Banks, Sable Island Bank, Cape Sable Bank, Banquereau, Georges Banks and then Cape Cod and Long Island. The sandy forefront pushed out by the advancing Pleistocene glacier and then left there when the glacier melted and gradually retreated. It was dissected by the rivers coming from the melting glacier, draining from the land, no longer a continuous shelf, but certainly previously a continuous

shelf from Long Island right up to eastern Newfoundland, the Avalon Peninsula of Newfoundland.

My professor was very much interested in the fact that on eastern Newfoundland, cold, windy points washed by the Labrador current and with icebergs going by, there were plants that grew in the Carolinas, Georgia, Cape Cod and Newfoundland. So he was interested in the possibility of there still being more remnants of the migration of plants northward after the glaciers retreated and so I went there, and I learned patience. Sable Island was a government reserve. It had been a pirate and wrecker's haven till the 1800s. The people would light signal fires on it and lure boats in the storm towards the signal fires, and then they'd be wrecked on the sand shoals, and they'd be plundered by the pirates who were there. Well, the government in 1800 marched in and took charge of it and made it a government reserve. They had two lighthouses and five lifesaving stations in twenty miles, and there was a Marconi station there, a wireless station.

I was to be in Halifax on the Fourth of July ready to sail. I was there on the second of July and I called on the deputy of marine fisheries and told him I was there, and he said, "Well, there's been a delay. We've had some navigation aids, some buoys, washed out of harbors and we've got to replace them, and the boat has to go up there and find them and put them back in place. There's a delay." And then another delay. And then another delay. On the fourth of August we sailed.

A: Now what did you do during that time?

S: (laughs) Well, I just marked time. I wasn't told it would be thirty days. I was told there'd be a delay. So that was my training in travelling and learning patience.

A: You were in Halifax that whole month then?

S: No, I spent a week in a place called Sunnybrae, and did some collecting. I was in Halifax three weeks out of the month. Finally we sailed and it was a night voyage out to the island. When we were ready to go ashore, I jumped down into the lifeboat, which was the landing boat, slipped and hit my shin on one of the seats. Boy, did I have a sore shin. (laughs) Well, I got ashore and my baggage got ashore. They didn't pay any attention to me--the people of the island who were handling the baggage. The boat, the steamship, 200 feet long, The Lady Laurier, usually came out two times a year so they got their mail, their food supplies and goods on the ship. They were interested in getting the goods ashore. They weren't interested in me, and they hadn't told the superintendent that I was coming. So I went up to the house and, eventually, met the superintendent and

explained, and he met the situation and invited me to stay at the headquarters house there. So everything was fine.

A: This was their only contact then, twice a year when the ship came through?

S: (nods affirmatively) It was pioneer, primitive. I spent a month there botanizing. The island was formed of these sand dunes, some high sand dunes about 100 feet high. According to the records of a hundred years before, they had been 200 feet high and the island had been thirty miles long and twelve miles broad. It was washing away.

A: Very rapidly.

S: It's still there. I don't know how big it is now, but they've discovered oil near there and they've got some commercial oil base camps on the island. The wells are out in the ocean, in the water. I haven't got full details of that. I bought a copy of the map that they had then, a blueprint map of the island about three feet long, with symbols representing the known shipwrecks, and there were 212 known shipwrecks on that island at that time. Shipwrecks aren't as frequent now because of radar. They have an effective radar station there and most of the ships have radar and so they get warned away from the island.

But the island is 100 or 200 miles north of the trans-atlantic shipping route and it's in the center of an eddy. The Labrador current, which is cold, comes down inside of it, between it and Nova Scotia, and the Gulfstream comes up south of it before bending off towards Europe and those two streams make an eddy. So the cold air, cold water, warmer air, warm water, mix and make fog. One year they had a record of seven months continuous fog. And the temperature is not bad. They never get it very much below zero and never over seventy-five. The rainfall is moderate. It's a windy place, and the winds average eighteen miles an hour all year long. And as I tramped around, I had to shield my face a good deal of the time because of the blowing sand. It was like a sand blast. And to show the effect of that, every glass window in the buildings there, which had been there a year, became ground glass. It's a very vigorous climate.

And about (I was there in 1913) and about 1900 the Canadian government arranged to plant bushes and trees to have vegetation to hold the surface so it wouldn't wash or blow away. There were no trees there at the time. There were one or two species of bushes, but there were no trees. So they got the same species that had been successfully used to sandbind the coast of France. And then they got similar, related species from America. And I have the figures. But it's a matter of 20,000 or 30,000 trees and many pounds of seeds and so on. They planted them ten years previously.

When I got there, there were less than 300 of them still alive and none of them were taller than the sandgrass, and probably they would all be dead within another ten years. It's a very vigorous climate.

Well, those climatic factors would have an impact on the plants that grow there, and I wondered if evolution would be more rapid there than in most continental areas. Well, I found one new species of Rubus, and I found twelve slight variations of known species, which I described as varieties, so there was a distinct element of plants that were changed or were changing from the mainland stock of those species. So my results were of some interest. I eventually published an account of my trip there.

A: How many people were inhabiting the island at that time?

S: About a hundred. There were twelve or fifteen at each of the lifesaving stations, about half a dozen at the Marconi station, and the superintendent and his family. Somewhere near one hundred.

A: Did they live in individual houses or were they at the stations?

S: No. They lived at the lighthouses, they lived at the Marconi station, and they lived at the superintendent's house.

A: Is that were you were? (nods affirmatively) So each of them was like a community setup. Did they feed you well? Did they take good care of you?

S: Oh, yes. I had a very pleasant stay there.

A: And how long did you stay there?

S: Only about a month.

A: Well, then how did you get back?

S: Well, when we sailed from Halifax the superintendent said, "Now, when you want to come back, just send me a Marconigram a week in advance and I'll send a steamer." I thanked him cordially, and didn't believe a word of it. (laughs) There was a thirty day lapse in getting out there. Well, the week before I had to get started back to college I sent a Marconigram and, lo and behold, out came the steamer.

A: How wonderful! So this restored your faith in mankind. (laughs) And that was during the summer of 1913.

S: Yes. Well, the island was famous because of one bird, the Ipswich sparrow. It was a migratory sparrow which had been first discovered in Ipswich, Massachusetts, and it went through there in the fall and came through there in the spring on its migration, and some years later Dr. Jonathan Dwight found them nesting on Sable Island, the only place where they nest. So this one island is the home of one species of bird.

Another feature of the island was the ponies. Well, there are small horses or ponies there and nobody seemed to know much about their origin. They'd been there for generations. In my studies I found a Boston newspaper which advertised the island for sale. The man who owned it in 1750, who tried to make a go of it as a farm, and as far as I know never succeeded in selling it, abandoned it, and he abandoned horses there. Those were the ancestors of the Sable Island ponies which were small in size and very heavily maned, and because of living on loose sand all the time and never being to a farrier's shop their hooves grew out almost like small snowshoes.

A: So that was a case of adapting to the climate and the terrain.

S: Yes, and zoologists claim that they very closely mimic the original horse of the Tartary in Asia, the wild horse. So they're an interesting group. They had some of them domesticated and used as saddle animals and I rode on them a good deal. But most of them were wild, in bands. And once a year they had a drive and they controlled the population by taking a certain number each year, sending them to the mainland on the boat, and then they'd auction them off to anybody who wanted a wild pony.

A: There was enough vegetation on the island that they could feed?

S: There were two or three hundred of them, but they didn't want them to grow into thousands.

A: Because the island could obviously only support so many.

S: Now when I came back, I studied my scientific results and, as I said, made some discoveries and printed a report on them. But my professor was very scientifically minded and paid no attention to the public, only to scientific botany. And he did some fantastic things, but he never made any fuss about them, never a newspaper story, never a magazine story about them. So I never thought of doing any more. Since I'd been out there, various short-time visitors had come back and printed stories in the Saturday Evening Post, Time, in one place or another. There's a good story there and no trouble

in getting it published. Well, later on I learned it was desirable to print the popular stories about what you've been doing so that the public will know something about it. Because if you do only science, only a few scientists here and there know anything about it and you're a closet scientist. It's much better to use publicity and I learned to do that.

A: That way you get to cover the two fields. You encourage people, you stir up their interest in what you're doing and yet you still have the scientific part of it. You're not losing that.

S: Even when you're a professor at a university, the other professors don't know anything about you. They learn about you from the news stories. They don't know anything about your effectiveness in your particular science. Now I have been successful in scientific research, in botanical research. I don't know whether you saw that thing or not? (reprint from Pacific Science, 1979 vol. 33, no. 4). A few years ago the natural history magazine at the University of Hawaii called Pacific Science devoted an entire number to manuscripts which I had submitted to them and, as an introduction to that, printed my biography. And at that time it was 390 articles or something of that kind. Now it's 406. So I continue to produce about six or eight articles a year, and this is what I looked like at the time.

A: I was quite impressed when I found that in the first ten years after your retirement there were a hundred new publications. So you have definitely not rested on your laurels or on your Pandanus. (laughs) Wonderful. Well, is there anything else you'd like to add today?

END OF TAPE 1/SIDE 2

December 13, 1985

A: Now we're all set up, Dr. St. John, and you had mentioned to me before we broke up last Friday that there were a couple of things to remind you about. First of all, you were talking about your mother's record on entering college and then some of your ancestry. Do you want to cover those two points first?

S: The record made by my mother, Martha Everett St. John, Martha Everett she was, is worth mentioning. She was educated in a small country town in Massachusetts and, I believe, her mother was the teacher of a one-room country school, but the family apparently decided to send her for further schooling and she was sent to Boston to enter the brand new Girls' Latin School. There had been a Boys' Boston Latin School for many generations, but they finally decided to educate some women in the same way. And, as I say, it was

a brand new school and the leading teachers there were two or three young men who were all imbued with the idea that women could do anything men could mentally. And they were determined to prove it.

A: Well, they were absolutely right, of course, weren't they?

S: Well, ultimately they put their pupils through a course of study in the classics, Latin, Greek, languages, mathematics and so on, exactly the same as was presented in the Boston Boys' Latin School. These teachers made very certain that their pupils learned what the lessons covered, and drilled them, and drilled them so that they were letter perfect in these subjects. Well, when time came for my mother to make application for college, she took the entrance examination for Radcliffe College, which was an affiliated institution beside Harvard. She did well, she was a top scholar, she got the best entrance grade of anybody that year.

But when it came time to register, she changed her mind and she registered in Smith College, a girls' college in Northampton, Massachusetts, rather than in metropolitan Cambridge-Boston where Radcliffe is. What her reasons for that change were, I never heard. She followed through the four years, of course, at Smith College and graduated. I'm not aware that she concentrated in any subject or that it was a part of the program at that time. Anyway, she developed a very strong loyalty to Smith College. I don't think any college ever had a more loyal graduate than my mother was to Smith. (laughs) It didn't take much of an excuse to get her to go back, and she and I and others in the family have seen to it that some of our descendants have also gone on to Smith College. That's what I was thinking of, I imagine.

A: That's great, just wonderful. And the school that was founded must have been about when? Around 1875 or 1880?

S: Well, she graduated in 1888 and it was a going college at the time. I don't personally remember the year. It wasn't the oldest college. I think Oberlin was the oldest college.

A: But I was talking about the Girls' Latin School. That would have been a little previous to her college.

S: Oh, yes, that was a preparatory school. One other thing we thought of at the end of our last discussion was a matter of ancestry. I was asked about my father and my grandfather and what I could remember about my ancestry. Well, I know a few more things.

A: Well, I'd like to hear them.

S: I haven't bothered to try to keep them in my mind. I'm from an old New England family. The first of our ancestors who ever came to America was Matthias St. John who arrived in 1631. I'm the tenth generation down in a direct line from him. They lived in Massachusetts or Connecticut, as I recall, all of that time so it's definitely a Yankee family.

A: I would say so. And do you know where he came from?

S: There was a family of nobility in England at that time named St. John, but it's perfectly obvious that my ancestor was not one of the nobility because he couldn't even pay his passage. (laughs) He signed a contract to work for three years as an indentured servant to pay for his passage. That was a common practice at that time. So he definitely was of the common people. He definitely had very little money, not enough to pay passage on the boat, and he had to work for his living.

I got these facts from a book that was published by Arlene Alexander St. John about 1905 or 1910 called The St. John Genealogy. We had a copy, my father had, and it went down my brother's line and I don't have a copy of it, but it was a published book and would be in all genealogical libraries. My name is in the book. I was a small boy at that time, but I was entered in the list. So there's a source of information. I personally have made no attempt to follow back, and I think it would be quite futile now to try to get seventeenth century records in England after the bombings of World War II which destroyed so many parish churches and their records.

A: But you're so fortunate that somebody did do this.

S: This was done before recent destruction.

A: Good, good. And the family, basically, stayed in New England.

S: We have genealogy, one of my wife's charts. Well, here's one of my charts which goes on and on, so we have genealogy records, not complete but very extensive, going back anywhere from six to ten to twelve generations. (shows charts)

A: Your children are quite fortunate to have this. Wonderful.

S: Now my wife, who was Elizabeth Chandler, descended from the first Chandler who came over in 1640. My ancestor landed in Dorchester, Massachusetts, hers landed in Boston. And they lived in New England almost regularly and the Chandler

family is a very large family. They commonly in the old days had eight or ten children and in the present time they commonly have five or six children and they all married. For instance, when I got married I had one brother and one first cousin. That was all in my generation. She (Elizabeth Chandler St. John) had six brothers, I don't know how many first cousins, but her grandmother had 120 first cousins.

A: One hundred and twenty! My goodness!

S: The Chandler family is a big family. Now neither of our direct ancestors came over in the Mayflower, but one of her indirect ancestors did. Richard Warren is on one of the lines of her family tree. I never made the effort to find out whether I had any secondary connection to the Mayflower or not, but I feel quite sure I have because with ten generations in New England, well, they intermarried. But I've been busy with other things and I haven't spent time hunting up genealogy.

A: It's an interesting and rewarding search, but very complicated and time-consuming. And I guess especially since you've been out here, it makes it a little more difficult to do that type of thing. But you have quite a bit here. Well, we'll talk some more about your wife later on here I hope. The last time I think we got as far as getting you back to your senior year at Harvard after Sable Island, didn't we? And we'll cover some more of this when we talk about your wife and family.

S: Well, that was my first independent exploration. I had been favored by my major professor, Professor Fernald, on two previous summers. He had taken me along as an assistant on two all-summer, botanizing expeditions. The first one was to Prince Edward Island and Nova Scotia, the second one to Prince Edward Island, the Magdalen Islands in the middle of the Gulf of St. Lawrence and the west coast of Newfoundland. Well, my teacher, Fernald, was a very vivacious, very dedicated, very inspired man. He loved his subject. He just bubbled over with enthusiasm about it and it was very easy to catch that enthusiasm. In the classroom he was strict and firm and demanding and it was a revelation to go with him on a field excursion and find what a jolly fine fellow he was. I've always been grateful that I had the good fortune to be in contact and be chosen as assistant to a very wonderful professor.

The next year when I was beginning as a graduate student in botany under Professor Fernald, along came the head botanist from the National Museum, the Victoria Memorial Museum, in Ottawa, to visit and consult with Professor Fernald. Fernald was the leading outstanding systematic botanist in the country at that time, and he was outstanding throughout his entire life activity. So Fernald arranged to

have three of us be interviewed privately, separately, by Mr. Macoun. Mr. Macoun, James Macoun, was about to retire.

A: Excuse me. Was that the same Mr. James Macoun who had gone to Sable Island prior to your visit?

S: No, that was John, his father. They were both botanists. M-A-C-O-U-N. So for ten or twenty minutes each of us was interviewed and then the next day I was called back and Mr. Macoun told me that he was about to retire, they had a small establishment, but a very interesting one with a good future. That is, he was the head botanist for the Canadian government, that was his position in their museum, with facilities for travel, with contacts, with agriculture, with geology, with forestry, with various official branches and commercial enterprises. So it was an important and a good opening. The salary was not high.

"Well," he said, "what are you going to do this summer?" "Well," I said, "I haven't any rigid plan, but an amateur ornithologist here in Boston, Dr. Charles W. Townsend, has asked me if I would go along with him on a boat trip along the south shore of the Labrador Peninsula. I didn't have money enough to pay my share of the expenses." "Well," he said, "what is the plan?"

"Well," I said, "there's a Canadian, a Quebec official, who has a boat and starts from Quebec City every spring, sails down the river St. Lawrence into the Gulf, and then where it becomes the Gulf, that is Saguenay County, Quebec, and he is the Crown land agent, he is justice of the peace, he is game warden for the area, and he makes a trip down to the open ocean, down to the Straits of Belle Isle and back again each year in his self-built, forty foot, two-masted schooner. There are very few inhabitants down there. There are three villages. The biggest one, Natashkwan, probably has 300 people. And between those villages, the rest of the way, about once every fifty miles there's one cabin where a man tries to make a living by fishing and hunting.

"This official, Captain Bouteillier B-O-U-T-E-I-L-L-I-E-R, if anybody wants to buy an island, he sells it to them for five dollars; if any young couple needs to be married, he marries them; if anybody shoots birds, game birds, out of season, he looks the other way. Well, he knows the coast. The few people there are making a very meager living, just scratching the cold, barren soil trying to make a living out of it, and if they shoot birds, they shoot them to eat because they're hungry. They don't commercialize the slaughter of birds, they don't export any bird carcasses. What they shoot, they eat. He considers that normal, regardless of what the game law says. So that's his career."

"Well," Mr. Macoun said, "how would it be if I paid your way and paid you a salary when you went along on that trip?" I agreed immediately. (laughs) And he made the arrangements, paid my expenses and the Canadian government paid me a hundred dollars a month. And he continued my salary for two more years while I was working on my doctor's degree. So I was very well treated by the Canadian botanist and I was groomed to be the young botanist to succeed Mr. Macoun when he retired. I also went up to Ottawa and visited him there and saw the museum.

Well, that trip, the summer's trip, with the Captain, the mate, the cook--that was the crew of the two-masted schooner, and one ornithologist and myself. They were all pleasant, they were all personable. We got along splendidly. We had a fine time. The food was good. The Captain was a marvelous sailor. He had grown up on that coast and sailed it as a trader bringing supplies to the small settlements, so when he became a government official he was already trained. He knew the coast. For instance, we were entering a bay and I said, "Why don't you ever look at the chart?" "Well," he said, "why should I look at the chart?" He got it out and spread it out in front of me and there was the bay. He said, "You see that island? That island's three miles long and that island's not on the chart." So the chart that was made in the 1850s by a Captain Bayfield on a frigate sailing up and down the coast was a good preliminary chart, but it didn't show fine details along the coast, details that our Captain knew intimately and didn't need to look at the chart. (laughs)

Well, that's far north, fifty degrees north, and when they have a storm it's a five-day storm. Where I lived in New England, when we had a storm it was a three-day storm, (laughs) but it was a five-day storm up there and we had some, and I had mal de mer. I had seasickness. For the first three weeks I was seasick a good deal of the time. Well, about once every thirty or fifty miles, we put into the coast--wherever we asked to go or wherever the Captain thought it would be good for us to go, or wherever he had business. We put into most river mouths, there are many rivers there. That south shore of the Labrador Peninsula, behind it is a plateau, a granite plateau, 1,000 to 2,000 feet high, and then a falloff, a low coastal plain, poorly wooded, with black spruce mostly, an occasional fir tree, not much else. A birch tree here and there, but a cold, rugged, wind-beaten, desolate sort of a place. The first French explorer who came there, Jacques Cartier, described the whole coast as a land that God gave to Cain.

Well, to me the area was of abundant interest because from the moment I stepped beyond the last house in any one of the little villages, from there on out it was virgin territory. There wasn't a weed, there wasn't a tree cut. It

was land the way it was made, untouched. Not many naturalists of my generation have had the joy, the experience of studying intimately a virgin territory like that one which stretched for 600 miles without a break. I got inland only twenty miles and went up one river valley. The difficulty was that most of the trees were not more than six to ten feet high. These were evergreens, spruce, and their branches from adjacent trees interlaced. It was almost impossible to breast your way, to force your way through. The only way you could make any progress was to grasp the leader, grasp the upright shoot of the tree with one hand and stand on one of the side branches and then lurch to another tree and stand on its branches.

A: Very slow progress then.

S: You couldn't go very fast or very far. The great bulk of the area is a part of the Archean shield area--that is, the great shield-shaped exposure of granite. However, where we started at Mingan and at Natashkwan there were offshore islands and, in one case, a little peninsula of Silurian limestone. And besides being interesting rocks with lobsters, fish, fossils in the rocks, they were fascinating. They made an entirely different kind of soil. The granite, granitic soil, is thin and acid. Soil from limestone is neutral, rich in mineral elements, including the lime and much more fertile than the granitic soil. And there was completely different flora. There were yellow lady slippers and calypsos, orchids and some amazing things growing there.

On leaving there we didn't see anymore of that lime area until we got all the way down to the Straits of Belle Isle at Blanc Sablon. There there was a low, horizontal rock formation of carboniferous sandstones embedded in a lime paste so the end result was a limey soil. As an interesting result, of course, quite a number of the species of the far west, the Mingan Islands, weren't found again until we got 600 miles away down at the Straits of Belle Isle where the climate was completely different, where there were no trees near the shore. You had to go several miles inland to find a tree. Low, rocky headlands, wind-beaten, barren, cold, stormy sea offshore with always icebergs in sight, floating down in the Labrador current. So the two habitats were climatically as different as they could be, but chemically they had the lime and the plants found those habitats. (retrieves books on Sable Island and this expedition)

A: You showed me the Sable Island one.

S: I finally wrote my doctor's thesis on the flora of that region and it was published by the Canadian Geological Survey.

A: So you gathered all the material for your thesis on this trip?

S: Here's a listing of all the plant specimens in the area. Now these recent insertions are the result of a subsequent publication by Mr. Lewis. Mr. Lewis had the job, after our Captain, of sailing up and down the coast and for twenty years he went up and down and he knew some botany. So when he found a plant where I didn't report it, he listed it in his publication. But he found no additional species, and what his subsequent study did was simply confirm what I had already done. I made a considerable study of plant geography based largely upon the chemistry of the soil. Oxylophytes are plants that grow on acid soil; calcicoles grow on limestone soil.

A: Wasn't it fortunate though that this Mr. Lewis could follow through on this?

S: Yes.

A: That he had enough interest and knowledge to do that.

S: That's what the coast looks like. (displays book). Barren headlands, and a few little low bushes in the hollows. There's our boat, two-masted schooner, forty feet overall without auxiliary.

A: That does look as if nobody ever walked there. Did you do the photography, too?

S: I did some of it, but my camera broke after two or three weeks. I sent it back to Eastman Kodak Company and asked them to mail it directly to Blanc Sablon via Newfoundland, but they didn't. They mailed it via Natashkwan and it got there after I'd left the coast. Then they put it on a dogsledge and carried it on a dogsledge all the way, 600 miles, to Blanc Sablon and back again in the winter.

A: So your camera did more travelling than you did.

S: The camera saw the coast, but didn't record anything.

A: So somebody else did some photography for you?

S: Yes, the ornithologist took some pictures. Yes, my camera's shutter broke.

A: (still looking at book) That's wonderful. There's not a pathway through there. You just made your own. You didn't say anything about being seasick on the other trips. Was that because it was a smaller boat or the water was rougher?

S: Well, the only other trip I mentioned was to Sable Island. Yes, I was seasick that night going out, but that's only one night. But here I was seasick for three weeks.

A: The one night wasn't worth mentioning, but the three weeks were. (laughs) And what year was that?

S: That was 1915.

A: Two years after Sable Island. And you spent the whole summer then on this one? And then went back to Harvard?

S: Well, there's an interesting comment on what happens to work done by the Canadian government. When I made the trip, I learned of and got a copy of a new map of the coast showing new land divisions, names, topography. (displays map) Here's Newfoundland, there's the open Atlantic, and here's part of the coast. You can see it's a very complicated coast. Since the earlier map by Captain Bayfield only had about eight or ten names on the coast, this Province of Quebec map had hundreds of names, each of which I could use for a particular locality when I found it. I naturally used those names as the localities and had them printed on my botanical labels that went with the specimens. And I used them in my report, quoting I collected such and such a thing at such a locality.

Well, a copy of my report went to Ottawa, and was accepted by Mr. Macoun and it was referred to the Geographic Board of Canada. They have a government official board to determine the names of places. And, as was customary in those times, it was either wholly staffed or in majority staffed by English speaking Canadians. And this report started a fight and they fought over it for a couple of years and finally ruled that I couldn't use the names on that map.

A: Because they were all French names?

S: Because they were French names in a French province in Canada. Well, consequently, the names that are printed in my report here are spelled differently than the names on the actual labels. I know it (nobody else has ever made a fuss about it), but it held up my publication for several years while the officials fought whether or not a Frenchman could use a French word or not. All right, they won. It was printed the way they said it had to be printed, but there was also a constitutional requirement, a federal law in Canada that all government documents would be printed in both languages, that there would be a French edition of every document. Well, this was a report on the botany of the Province of Quebec and they have yet to print...

A: ...the French version.

S: ...the French version. Now it has become obvious during the last number of decades that the French were unhappy by the way they were being treated by the English in Canada. And there's an example of why.

A: Definitely. That could lead to some confusion for somebody who didn't understand it, right?

S: I've been waiting to be criticized about how I couldn't remember how a name was spelled, but nobody has written to me about it. (laughs)

A: Well, did you have to wait until that was published as part of your doctorate program or could you go ahead?

S: I went ahead. I used another copy. I got my degree in 1917, and this was printed in (checks publication date) 1922.

A: It's a good thing you didn't have to wait for that then. So after you got your doctorate then in 1917 what did you do?

S: Well, the next year I had figured out a plan to hire a small open fishing boat at Mingan or Natashkwan and go over to Anticosti Island which is an island--oh, it must be eight miles long and it's a bit of that Silurian limestone elevated with white limestone seacliffs and waterfalls out at the end of the cliffs and so on. It's a beautiful place. And it was privately owned at that time. A Monsieur Gaston Mennier, the chocolate manufacturer of Paris, owned it and had a private yacht and had a chateau at one end of the island. I believe he had twenty-five bedrooms so when he brought his guests over on his private yacht they could stay on shore. He was very uncooperative to other people and never would say, "Yes, you can come to my island." I thought I'd coast along as a mariner and just land without asking any permission in a bay where there were no inhabitants. (laughs)

Well, that was 1916. Let's see. I did go off that summer with Professor Fernald again to New Brunswick and Prince Edward Island, but it was a nuisance because Canada was in the war, World War I, which started in 1914 and there was a reward posted in Canada for anybody who could catch a spy. The reward was \$100. Every impoverished farmer in the country of Canada was looking for spies. (laughs) So any stranger, any foreigner who came along was a spy. We gave up after a while. Couldn't stand it. (laughs)

Well, in 1916 I tried to arrange for that trip to Anticosti and no American official would say I could leave

the country. I was of military draft age and they wouldn't say I couldn't go, but they wouldn't say I could go. And Canada was all stirred up. So that fell by the wayside. That plan never materialized. It was a war casualty. So after I worked for a year as an assistant at the Gray Herbarium at Harvard and during that time I signed up in the ROTC at Harvard, the Reserve Officers' Training Corps, and had three months of elementary military training. And then from that group I was recommended for an Officers' Training Camp.

In January, 1918, I entered the camp at Camp Upton, New York, on Long Island. We had three months training in a very cold, bitter winter standing at attention when you don't know whether your fingers are freezing or not. Well, they closed the camp two weeks before the official date. None of us received commissions. They attached us all immediately to a draft division...

END OF TAPE 2/SIDE 1

A: They didn't give any reason for closing?

S: Superior officers don't give reasons.

A: They don't. Some things never change. (laughter)

S: They attached us to the 77th Division which was just about to go overseas and so we all left the Officers' Training Class as first class privates. I was assigned to Company A of the 306th Infantry and was attached to a squad there and by the time we sailed a few days after that they made me a corporal. And I had a squad of seven men and myself, and three of them were French Canadians who had come down from Canada to escape the Canadian draft, one of them was a German, one of them was a Swede, and I've forgotten the seventh.

A: How did the French Canadians get into the U. S. Army? They avoided the Canadian draft you mean and...?

S: They avoided the Canadian draft and were just grabbed?

A: Were they American citizens?

S: No. They just....(laughter)

A: Okay. They were warm bodies.

S: Well, we went over on a big liner. I've forgotten which particular liner it was, and we landed at Liverpool, loaded on trains, and the trains zigzagged southeast across England, and finally got to Plymouth and the next day we were loaded on a transport, a cross-channel vessel, packed in so tight

that we couldn't sit down. Just jammed in like so many vertical sardines. Yes, I was seasick.

A: You knew I was thinking that. (laughter)

S: So we landed in France and marched ashore and went to a camp and then the next day were mobilized and marched out to the front. That is, this was the time in 1918 when the Germans had driven across Holland and Belgium and across France to within fifty miles of the coast of the English Channel. They had broken the British Army and the survivors were scrambling around, trying to reassemble a line, trying to make a resistance and stop the Germans and they marched us up to the rear of that and formed another line behind to wait for the Germans. Well, the British were there--cooks and bakers and orderlies and second lieutenants. Finally they formed a line and stopped the Germans. So we had bombing day and night, and airplane strafing and so on, but we didn't actually get engaged in the fighting at that time.

Then before long I was made a sergeant, but still left in charge of a squad. They had no other place to put me. We moved on and established a camp. I can't recall the name of the place now (I can find it on the map), it was in Pas de Calais and about thirty miles from the coast, and we stayed there for more training. Well, our group were draftees from the New York City area, unwilling soldiers, of very diverse origin, as you could tell from the composition of the squad that I had, and generally "agin the government." And not very alert, not very bright as far as I could see.

For instance, the Company next to mine, Company C of the 306th Infantry, was being given grenade instruction. They were given the Mills grenades, which operated by having a hinged handle on the outside, and you grasped the grenade and held the handle and the grenade together. If you wanted to use it, you put another finger through a little ring and pulled a pin which held the handle in position so that the spring would not throw it out and activate the grenade. So the drill was to take the grenade, pull the pin, hold the pin and throw the grenade. In C Company, the man held the grenade and threw the pin, and he killed thirty-seven of his mates. How stupid can you get? So when I actually got in the line with those soldiers, I watched my own squad soldiers more carefully than I did for the Germans. (laughs)

A: With that mentality, you had to.

S: Well, we were placed in freight cars, forty men to a car, and trained across France and got up towards Lorraine and went into the trenches near Baccarat. We spent several weeks there simply occupying the trenches and ducking when rockets or bombs came over. Then eventually the man-supply situation changed in the Army and they had need for more

officers so they issued an order commissioning all of the attendants at that Officers' Training School as officers.

A: The one that was disbanded? (nods agreement) So you finally got to be a second lieutenant.

S: I became a second lieutenant. There were two others in my Company and we got together and travelled and went back to Paris. We had to buy uniforms and equipment, bedding and so forth because an officer supplies his own. And when we were equipped we had to report to the (I've forgotten the name of the office) Army office for assignment. Well, we stayed about a week or ten days in Paris, and we had an interesting time. We went to the theater, we saw sights. I acted as interpreter because I could speak French and the other men couldn't, so they used me that way.

But then, eventually, we all got ready and reported for duty. And the officer in charge asked us if any of us knew anything about machine guns. Well, I said that I'd been trained with automatic rifles; that is, I'd been to the Third British Army Musketry School and been trained in the Lewis gun. "Okay," he said, "you have some qualifications. How would you like to go to a machine gun battalion?" So they assigned me to the 309th Machine Gun Battalion in the 78th Division which was a draft division from rural New Jersey and upstate New York and they were Americans. (laughs) The machine gun battalion had been formed by allowing the officers to pick and choose out of the infantry and they picked some very good lads. So it was a pleasure really. I couldn't have had a better assignment. The captain was a Cornell boy, who in his junior year quit Cornell, and went with the National Guard down to Texas and marched into Mexico with Pershing (in what was it? 1913? Well, somewhere along in there). Well, he had some military experience and became a captain and he was a splendid officer and a real gentleman. I still keep in touch with him, Captain Willard Lapham Smith.

Well, there were two of us new officers sent to the battalion and we trained with them and they had us train the soldiers in manual of arms and bayonet fighting and so on, and after a couple of weeks the captain sent the other young officer away. He kept me and I fitted into the battalion. Sometime later we were moved over almost to the coast of Switzerland and marched north in the daytime and at night slept in the woods and there was a great gathering of hosts. It was obvious that something was going to happen and what the thing was was the planned attack on San Mihiel which was the first action of the American Army in France.

Just before we got to the lines, I was detached and sent to a machine gun school to get machine gun training. So I missed the action. I almost did it, I almost got there.

(laughs) After the action we had a couple of weeks at the machine gun school and then I rejoined the outfit. And then we got marching orders. We marched day after day after day after day. Well, it wasn't so bad with the machine gunners because they had transport. They had horses, horse-drawn vehicles, limbers. A limber is a wagon in two parts, each pair of wheels with the axle has a square, open box on top as the cargo area. Then there's a bar and a hinge and another similar half. So it's four wheels, but it can turn on a dime. It can go anywhere. It's as mobile as the horses are. We had two horses for each limber and machine guns, ammunition, gear and officers' baggage and some other supplies were carried in the limbers. Well, we marched day and night and marched so that one time I fell asleep while we were marching and woke up when I banged into the man ahead of me. (laughs)

Well, we finally got to a place and stopped, and then the next day we had orders and I was told to take my platoon (I had command of the 4th Platoon--I think it was thirty-seven men, four machine guns, seven noncommissioned officers) over the ridge, then across the valley and find the Germans. Well, we left our transport. We had to backpack our machine guns, one man with the barrel of the machine gun, another with the tripod, in addition to his normal load, and another man with ammunition. So we crossed over this forested ridge and came down into a valley, with meadows and grass, crossed that and then started up along a grassy slope towards the northern rim of the valley. We no sooner started up than a machine gun opened up on us from the crest of the ridge. We'd found the Germans. They were up there.

Well, that was the first military decision that I had to make. There was a slope, a quarter or a third of a mile of open grassland, no cover, our men scattered, strung out in loose formation, but an excellent target and the Germans concealed in the edge of the forest. Should we rush up and have the survivors try to capture the hill or should we do something else? Well, I blew a whistle and motioned the men down on the ground and they went, and I thought it over and saw no profit in losing half the men walking up that slope. So I called them back, and we went back, and a small stream cut a little miniature canyon and the walls of that dirt canyon gave protection so we established a temporary base there.

There was supposed to be some infantry in front of us, but the next day along came an infantry officer (he was a lieutenant) with a sergeant, and he said that he and fourteen soldiers were the only survivors of an infantry company of 250 men who apparently had gone up the slope. I never saw him again. Well, there we were. We were the front line although we were supposed to support the infantry. There was no infantry. There was a tributary in a side gully, off

to the left, which cut back in towards the ridge and we gradually worked up that, found some buildings there, then gradually worked our way up on to the crest and established our base there, our guns positioned there. And we used them against the airplanes which came over.

All airplanes were German for any American airplane that came in sight was immediately chased off by the Germans. The Germans had complete command of the air and this was in the last months of the war. This was the battle of the Argonne and they still had complete command of the air. We stayed there a month. We lost three guns and about a third of our men from artillery fire and bombing because the German airplanes (some of them were spotters) indicated the target to their artillery. We held the position, and then at the end of the month suddenly one morning our captain showed up with orders.

He said, "Form up. Get on the road. Get ready to march. We have marching orders for thirty-seven kilometers." Well, we'd been about five or six kilometers in thirty days (laughs) and the next day we were supposed to go thirty-seven kilometers. I laughed at it, but we formed up and, lo and behold, in two days we did some thirty-seven kilometers with some resistance. There were still some Germans around, but they were pulling out.

Then we got orders relieving the entire division. Our 78th division was ordered out of the line. We'd lost 8,000 men out of 35,000 and we could still fight, but they had fresh troops to relieve us, and we with another division came out. That was an interesting experience because here we were on a two-lane dirt road and there were two divisions, totalling 70,000 men with horse transport, with motor transport, going out and three divisions coming in on the same road. (laughs) You can imagine what a picnic that was. It took us two days to get out and we got out fairly easily because having limbers we took to the fields, knocked down the fences and went right through.

But there was one humorous incident that occurred then. We were sitting down, resting beside the road, and along came another division, a regular Army division, the Sixth Division, and along came a machine gun battalion. Two or three of the officers rushed over to us and said, "Have you got any ammunition?" We said, "Yes, why?" "Well, we haven't got any." "Well, what did you do with it?" "Well, we threw it away." The story was that there were three regular Army divisions under strength, and they robbed them for junior officers to promote and put in draft divisions, and anyway those three divisions went overseas, and out of the dregs of those they made two more divisions, and they went overseas, and out of the flotsam that was left they made the 6th Division. And they went through the regular training and

they were awful. And they sent them to France, and the people said, "My God, you can't send them anywhere." So they gave them marching orders.

They started from the Pas de Calais to Lorraine. I don't know. What is that? Four hundred miles? So they lined up and marched to Lorraine and when they got there there were orders waiting for them. Back to Calais. They made, I think, six round trips across France (laughs) to break them in to some sort of shape. And then to their great amazement, they were marching up into the battle line. In the meantime they had thrown away their knives, forks and spoons, they'd thrown away their ammunition, they'd thrown away everything that was heavy. (laughs)

A: They figured if they were going to march their way through the war, they were going to do it as lightly as possible.

S: Well, I had a friend, a Harvard graduate, who was in a militia field artillery battery, which was so good that most of its noncoms were made officers and sent to other divisions, but somehow he didn't make it although he was a good guy. Well, he ended up as a private and had to go on foot back and forth across France with this field artillery outfit. We were issued a bacon can, a cast iron can that big (measures size) that we were supposed to carry bacon in. They never gave us any bacon and the can weighed about a pound or a pound and a half and we always threw those away. But he was given a knife, fork and spoon. Well, he didn't need the knife, because anything he could cut with the knife he could cut with his teeth; he didn't need a fork, because anything he could pick up with a fork he could pick up with a spoon. So he kept only the spoon. On that basis he pruned down his luggage. Well, once a month or so they'd have a general inspection and he had to lay out his gear, and an officer comes and says, "Where's your knife?" "I lost it, sir." (laughs) "Go get another one." He'd go draw another one and then throw that away. (laughs)

Well, there was quite an experience the first night we got back out of the lines. We got to a camp and they turned the electric lights on. We hadn't seen a light for a month. And they brought in a band and gave us a concert and so on. It was quite emotional.

We were ordered back into central France in the Province Cote d'Or and our battalion of four companies was split between two small, adjacent farming villages. We were placed in a village called Chassey C-H-A-S-S-E-Y le Marigny M-A-R-I-G-N-Y. The soldiers were billeted in the attics and the stables of the inhabitants. That was an area in France where all of the farmers lived in the village. There were no houses on the farms. They all had stone houses close

together. Sort of a fortress-like arrangement of houses for defense, back from the old baronial times.

A: And they commuted to the farmlands in the morning.

S: Yes, they walked to the farmlands, drove the cattle out, and so on. I was billeted in a bedroom in one of these houses and some of my men were in the attic above. And I had a very lovely experience there. The family was named Mouard M-O-U-A-R-D. It consisted of an almost-aged farmer and his wife and their daughter. The daughter may have been thirty or something like that. Well, they quickly discovered that I could speak French and we were courteous to each other and very soon they invited me to have breakfast with them. Well, we had an officers' mess, but any group meal is never as good as a family cooked meal, and Madame Mouard was an excellent cook and they had their dairy farm with milk and cream, butter, so soon that became the custom. I ate breakfast with them every morning. And I tried to repay them by bringing them jars of jam and bags of sugar and things that were not easily available to them in wartime. So I think I paid my way to some degree.

They were very pleasant, very nice people, and I was amazed at the literary background of the old farmer. He was always illustrating things by proverbs. He'd recite this proverb, and I was interested because almost always we had a somewhat similar one in English, worded a little differently some of them, sometimes exactly the same. I later on regretted that I didn't write down those proverbs. But you can see they were a family of some culture for farmers.

Well, we received recruits, replacements. We had lost a third of our men and we had to drill them and train them. But very soon the captain came to me and appointed me as Town Major. That is, I was the officer who had control, responsibility, for the relations between the inhabitants and the military. Well, oftentimes it was unpleasant. A soldier had gotten drunk and beaten up an old man. You know, but it wasn't too bad. But it gave me liberty, and duty to move around and do things and get to know the people.

Well, soon after we got there we received information that a week later we were going to receive thirty-six mules. Thirty-six Missouri mules to replace the horses we had. But we liked our horses, and didn't want the mules. (laughs) We turned in the horses and they came along with the thirty-six mules which put on a regular rodeo as they were led down the main street of the village. The thing that hit me. I was ordered to find shelter for them in the stables of the village. Most of the men were away in the war, there was little going on, and most of the stables were half empty so there was space. So I started at one end of the village. There were some twenty-eight houses in the village. I went

to them and spoke to the people and they invited me in and I told them that it was my duty to find places for the animals. Well, the conversation went on and they produced the drinks, either cognac or prunelle. I would drink wine; I would drink beer; but I wouldn't drink the strong stuff, so officially, in that village, I didn't drink at all.

A: By their standards.

S: I told them that all Americans were crazy (to which they agreed) and that I was more crazy than the others, because I wouldn't drink. If they cared to offer me coffee or tea or milk or water, I would accept a cup as a courtesy. Well, for the first three houses I had to fight off the strong drink, but word got around. (laughs) You see, each of them wanted to get me drunk enough so that I wouldn't use their stable at all. (laughs) So I succeeded in every place easily except one. There was one old codger, one old man, "No." He wouldn't. "No." I said, "Very well, either I do it with your permission or I do it without your permission." And I went into his stable and he followed me, and he had sugarbeets piled up in some of his stalls. I said, "Now, I will furnish labor and my soldiers will move those sugarbeets to any place that you specify." "No, no, no!" "Very well," I said, "we'll throw them out in the yard." Suddenly he saw the reason. So I handled him eventually.

Then orders came through that the officers and men who wished for their further schooling could apply to go to either a French university or an English university or school. They should apply and say what they wanted to study, but not where they wanted to go.

A: This was still while the war was going on?

S: This was during the Armistice (we were pulled out on November 9 and November 11 was the Armistice) so the fighting was over, but the peace treaty wasn't signed. I applied to go and study botany. I got orders back that I was accepted and I was to report to the University of Toulouse. Well, I already had my doctor's degree in botany and I knew what I wanted to do. I wanted to go to Paris and work in the museum there and study early French collections made in Newfoundland. So I argued the question and they said that Paris was already full, there's no place. "Well," I said, "I'm sure that the Museum d'Histoire Naturelle isn't full. I won't bother the Sorbonne. I won't necessarily cross their lintel." So eventually I got assigned to Paris and studied botany there.

I made the arrangements and went over and worked for two or three months at the museum there in Paris and studied the plant specimens that had been collected earlier by Monsieur Bachelot de la Pylaie in Newfoundland. And then I got word

that the battalion was headed for home. This was May, so with much difficulty I checked out of the school there. The major in charge didn't want to let me go, but I put up a convincing case and they let me go, and I tore down to Marseille and found the battalion two days before they got on our boat.

A: But that was an unexpected bonus, wasn't it, studying in Paris?

S: Yes. It was a very sleepy place then. Their staff, half of them, were still away in the war zone, but their collections were there and there were one or two good people there. Well, to show you, the head botanist, Henri Lecompte, had an office down on the ground floor, and you never saw him, he never came into the museum part, but I had called on him. I went down and saw him and one time when I was there talking to him, I said, "Well, Monsieur Lecompte, the war is over, you have a world collection here, a famous herbarium, scientists from many countries wish to come to study the collections here. When the Germans come, what will you do?" "They can come! They can work! But shake hands? Never!" Feelings were pretty raw.

A: Right. As a scholar he would extend the courtesy of the institution, but that was it. Well, we have you almost back home after World War I. You embarked in May.

S: Well, my father died two or three years before. My mother had moved to a smaller house, out of the parsonage. She was then living in West Philadelphia, and I went back and stayed with her for a week. Then I went back to Cambridge and reported at the Herbarium, and they told me, "Well, your job's ready for you. You can resume work here at the Herbarium."

A: Good. Well, this might be a good breaking point since we have you through World War I and back safely.

END OF TAPE 2/SIDE 2

December 20, 1985

A: We got you back safely to Harvard after World War I.

S: I made a note for myself about the job in Canada.

A: Oh, I remember, because you said you were being groomed for Mr. Macoun's job in Canada.

S: Well, when I got back to the States after World War I, I returned to Harvard and was again employed as an assistant in the Gray Herbarium and soon my professor, Professor Fernald, raised the question about what was happening in Canada, so he

wrote a letter to the National Museum reminding them of the arrangement that Mr. Macoun had made with me. In the meantime, Mr. Macoun had died. He was a one-man department, the botany section of the National Museum. So, administratively, they had transferred the records to geology. The Geological Survey of Canada was a big outfit. And here they had this small, one-man department with a vacant job transferred to them and I think they couldn't care less what happened. So Professor Fernald raised the question of was there to be a job for me there or not. After some interval they wrote back and offered me a job as an assistant in botany at the salary of a beginning clerk/typist.

A: How could you be an assistant in botany if they didn't have a head botanist? Oh, I see, this was the whole department.

S: And I quickly decided if I accepted a menial position like that, well, that's all I would ever get. So I wrote back and thanked them and told them that I was trained for that job and was interested in it, and if they would offer me a position at a salary appropriate for my status and training (I already had my doctor's degree) that I would consider the offer. No answer. so the job in Canada stayed vacant for quite a number of years, and then they filled it by appointing a plant pathologist from one of the experiment stations in Canada. Well, a plant pathologist hasn't got very much interest in taxonomy, the classification of plants. He was a nice man. He held the job for six or eight years and then retired. And then again, they advertised for people to apply for the job. They wrote to me, told me of it, and asked if I cared to apply. But the salary was considerably below what I was already getting at Washington State College, so I decided not to leave the country. Seems to me that happened again, yes, again when the next man retired, they wrote and asked me if I wanted to apply, and I decided I didn't want to apply.

A: Well, they were tenacious, but not generous. That was their problem. (laughter)

S: Well, I made a note for myself. There was one subject which I hadn't quite covered in my childhood, in my beginning as a naturalist and a botanist. A year ago I went East to give a talk at a celebration meeting of the New England Botanical Club, the celebration of the career of my major professor, Professor Fernald, so I went and gave a talk there. I also went to my seventieth college reunion, which by the way wasn't worth going to, because there were only five other people there and they were all decrepit. (laughter)

A: Didn't that make you feel good though?

S: Well, when I was East at the Botanical Club meeting, one of the men there came up to me and said, "Do you know anything about the youth and training and growing up of Charles Schweinfurth who was a botanist of your generation who became an orchid specialist, was employed first by Oakes Ames, and then Oakes Ames transferred everything to Harvard, and Mr. Schweinfurth became the orchid specialist for Harvard?" He said, "He has now died and there have been two biographies of him, but they tell nothing about his youth. That is, they start when he's already a trained botanist."

A: I thought this was where you told me about the ornithologists' club.

S: I told you a little about it, but there's more in this paper. Well, I said, "Yes, I grew up with him and we were pals and, yes, I know his youth." He urged me to write it up. I've written it up and sent it off to be published, but it hasn't yet been published. Here's a copy of the manuscript. I could either read some of that to you or talk some or let you take that and look it over and see what's additional to what you already have.

A: Okay. I can look it over this week and return it to you.

S: I know there's quite a bit more in there.

A: Okay. Then we can incorporate it.

S: The greater detail is my beginning as an active naturalist, as a botanist.

A: Okay. Since you already have this down, I won't ask you to repeat it, but I'll take this with me and make a copy and return it to you next week with this edition. Okay?

S: All right.

A: And that way we can get you moved up to Washington State today, can't we? You stayed at Harvard for...I know that after you visited your mother you went back to Cambridge and reported to the Herbarium again. Right?

S: That year 1919-20 I continued at Cambridge working in the Gray Herbarium, the Botanical Museum of Harvard, the position that I had when I left, and I was even able to occupy my old college dormitory room which was a charming place. The second oldest building on the Harvard Yard as they call it (they don't use the term "campus") was Wadsworth House. Wadsworth House was built in 1726 as the president's house for President Wadsworth of the college and it remained

as the president's house for several generations, and finally, when my term came along it was a dormitory with rooms for eight boys.

One of my father's best friends, W. W. Fenn, had become dean of the Divinity School at Harvard and they had an apartment in Wadsworth House for the university preacher, often a visiting preacher, so they had the dean of the Divinity School decide who would be allowed to live in the dormitory. We heard of it and my father wrote to Dean Fenn and I was assigned a room in Wadsworth House for myself and my roommate Alfred Chandler. The next year we got a better room and the third year we had a still nicer room, we thought. So I lived in three parts of that house.

Our senior year we joined the group movement, all the seniors lived together in three or four old dormitories on the Yard. And Alfred (or Ralf) and I and Wallace Fenn and Emmett Carver had quarters on the top floor of Stoughton Hall. Then after the senior year when I returned as a graduate, again I was able to have a room on the top floor of Wadsworth House which looked right over Harvard Square, right on the front street of Massachusetts Avenue and looking right into the square. A lovely place.

Well, I've lost the track...it was simply a statement about how I continued to live there and after the war I was again able to get those quarters. I had to take in other roommates with me in those later years. One of them was a good friend, Norman L. Torrey, who became professor at the University of Connecticut. The others were just roommates. But I had very pleasant, very convenient living quarters.

Then in the late spring I was told that there was an opening for a professor at Washington State College in Pullman, Washington. And it sounded interesting so I replied to the questionnaire and expressed an interest in it. The correspondence went back and forth to the chairman out there, and the weeks dragged on and it looked as it were going to take all summer. So the first of August I wrote to the Washington man and told him, "Well, we don't seem to be concluding on anything. If you arrive at any conclusion or if you wish to reach me, I can be reached by mail in two days from here. I'm going to do field work on Long Island." So I went off. I went down to Sag Harbor and botanized there on the west end of Long Island and then went to Fishers Island off the coast of Connecticut, off New London, and botanized there and finally came back and there was a message offering me the job, so I accepted the position.

One thing that influenced me was that there had been a previous botany professor there, Charles V. Piper, who was an excellent man and who had done excellent work and published a fine book on the botany of the state of

Washington, and had made big collections which were there at the college, so that sounded interesting. It was on two railroad lines. It was at the foot of the Rocky Mountains, the western slope of the Rocky Mountains, the Codur d'Alenes, and the little atlas which I had on my desk stated that it had 26,000 inhabitants, so I thought it would be quite a town. Well, I had an idea of what the climate was like from the description of the botany of the state of Washington. It sounded interesting, so I accepted. I went out and when I arrived I looked around for the 26,000 inhabitants, they'd put one too many digits. There were 2,600 inhabitants. (laughter) It was one of the smallest towns that I had ever had much contact with.

A: Did this include the college enrollment?

S: No.

A: How big was the college at that time?

S: The college was about the same size. Well, the chairman of the botany department there, Dr. F. L. Pickett, greeted me and received me. He was a very nice, very effective, very good man. My relationship with him over the years was excellent. There was one other professor, Dr. V. Burke, bacteriology was in the same department, so it was not a large department. But we had good quarters in a stone building and the plant collection, the herbarium, was in a room right next to the office that I had. I was put to work immediately. Most of my assignment was to teach laboratory sections of beginning botany, elementary botany, which was not difficult. Then I also taught a course in systematic botany and plant classification, and there was a very good, small handbook, Flora of the Palouse Region, written by a former botanist, Professor Piper, so that I had a good collection, I had a useable manual, and the facilities were excellent.

The topography and the climate were interesting because although it was very close to the foot of the Coeur d'Alenes, it was on a prairie plateau at 2,100 feet altitude and the weather was managed by the westerly winds which came off the Pacific, often moisture laden, and hit first the Olympics and then the Cascade Mountains and dropped most of their moisture there. Then they came across two hundred miles of low, sage brush, semidesert, so-called Big Bend country, and then up onto the grassland plateau of the Palouse country where Pullman was situated on the banks of the Palouse River. The rainfall was about eighteen inches a year and it came between October and May--much of it in the form of snow. From May to October there never was a drop of rain, not a single drop. So plants had to have good root systems, and had to be in water-holding soil or they couldn't get much of a crop.

A: How hot would it get, say from May until October?

S: Well, maximum of 110 degrees, and in the last winter that we were there it got down to 27 degrees below, so the climate was rigorous and it was quite changeable, that is you could get dust storms, snowstorms, squalls, rain. I think the best description of the climate was given by William Clark of the Lewis and Clark expedition, Captain Clark, on their way home going up the Valley of the Snake. They were going overland through what is now Dayton, which is on the same sort of rolling grassland country that Pullman's on, just across the river, and on the sixth of April, 1806, he said, "...and it hailed, or rained, or blowed or snowed with great violence the greater part of the day." (laughs)

A: Or all of the above.

S: The only thing he missed was the dust storm because strong winds going across the dry country to the west of us would pick up dust and bring it. You'd see this cloud coming and run for shelter. And then a surprising feature was that once in a while with a dust storm coming, along would come a rain storm and you'd get a mud storm. (laughter) I remember one of them that when it dried you had a quarter of an inch of mud over everything. It took them three days with the fire hoses to wash off the buildings. So it was a very vigorous climate. a great place for a meteorologist. (laughs)

Well, twenty miles to the east of there were the mountains, the Coeur d'Alene Mountains, foothills of the Rockies. Fifteen miles south was the Snake River in a canyon, more than 2,000 feet deep, and in the bottom of the canyon at lower altitude, with a warmer climate and a longer growing season, things would come into bloom three weeks before they did up on the plateau. And then there were the mountains with the evergreen forest. Oh, before the mountains there were areas of yellow pine forests, Pinus ponderosa, and they covered great stretches of country up to the north of the region of Pullman on the way up towards Spokane. Our nearest city was Spokane which was about ninety miles north.

Well, in some way Washington State College was something of a pioneer institution at that time. For instance, they had a preparatory department for the students who were old enough and who came to college, but hadn't had training enough, didn't know enough, to do the college work. If I remember correctly, at that time there were only five high schools in the state of Washington, so most youngsters except in the cities went through grade school and that was it. They had no chance to get into a high school. So quite a number of these people came to college and they were put into whatever courses seemed appropriate and as soon as they were

able they were moved up into college work and could go ahead with their college studies.

A: And they could do this without having a high school degree, if they had the ability?

S: If they had the ability and passed the courses, that was all that was needed. And in three counties in northeastern Washington most of the youngsters who came to school grew up in log cabins which their fathers built of the logs they cut down themselves. It was still pretty much a pioneer area, so many of these youngsters had to earn some or all of their expenses and about seventy percent of the boys took part-time jobs and fifty percent of the girls took part-time jobs as well as carrying on their college load.

A: In such a small town how could they come up with this number of jobs to accommodate them?

S: Most of the jobs were around the college, secretarial jobs, or waitress jobs or one thing or another. The boys who came there were good stout lads, some of them quite rough, and the general attitude towards the professor was, "Just try to make us work, just try." But if you were good, you could (laughs) and if you were weak, you couldn't get a thing out of them. But they had some pretty good students and an interesting faculty.

I began immediately to try to learn the flora. The plants of the northwestern United States aren't exactly like those of the east, northeast. Perhaps twenty or twenty-five percent of them were the same species, another twenty-five percent were the same genera and the others were things that didn't occur in the East. So I had a background of knowledge, but still had plenty to learn. As my professor had done, I emphasized field work, field trips with my students. As soon as it was March we could take trips down into the canyon if we could get there. There were no roads which were passable in the winter because the dirt roads became deep mud. Which reminds me of the nature of the soil. The Palouse plateau is formed of loess, L-O-E-S-S, that is windblown fine soil and it averaged forty feet thick, so it was a very excellent fertile soil for any plant that could store water, and get started and mature quickly and they soon discovered it was excellent wheat country.

. They used to average about forty bushels to the acre. I believe the average for the country was sixteen or something of that kind. So it became a very prosperous farming country. But with big farms (I don't know how many sections) and the wheat there was harvested by combine harvesters, great machines that looked like great boxes, sixteen or eighteen feet high, and with paddle wheel cutting blades. So this machine was dragged over the fields and cut

a swath about fifteen feet wide, gathered the grain, winnowed the heads, separated the grain, fed the grain into sacks, which men quickly sewed and then dropped off the rear. It was a very efficient operation.

They had two types of those that were in use in the country. The most fancy ones were motor drawn, but none of them were powerful enough to navigate the hills because this plateau of soft dirt was eroded into hills, oftentimes with a 20 degree slope, and so they were horse drawn. They used to have thirty-two horses in a hitch. four abreast, with reins to the leading pair, and the driver sitting up on a, well, it was like a ladder that went up to a seat. He was high above the rear horses and he would shout at them, and there were two schools of thought--if you wanted to stimulate the horse, you can throw a rock at him--so some of them had a box of rocks beside them and they'd throw rocks at them and the other school of thought was, use an air rifle and shoot them in the flanks. The shot didn't penetrate. It just stung them.

A: But one man handled thirty-two horses?

S: Yes, and to see one of those hitches come over the side of a hill...I'll tell you it was wonderful. Now they're motor drawn, now they have better motors.

A: I'm still trying to imagine thirty-two horses.

S: It's the steepest cultivated land, cultivated by modern machinery in the United States, but it's very interesting country. Of course, being fertile and being uniformly good, everything except the roads was cultivated.

My fieldwork quickly took me into various parts of the state of Washington. I did a lot of work in the region around Pullman to get to know the local flora. Then the first year I took off with two students. No, I didn't go until I had a car, and I didn't get a car until two years later.

Well, when the time came that I could get out I took two students and we went out through the sagebrush, Big Bend country, to the east of us and went into the Okanogan, the north country up there, and while there went to Oroville, a town near the Canadian border and just north of that was a place called Epsom Lake. So I went up there and it was in a basin, about half a square mile, and the rocks were serpentine, that is hydrated magnesium silicate, and they drained into a kettle hole pond. There was a sag in the middle and there was no exit, all the drainage came down into this pond. And in the winter Epsom Lake had liquid in it, but by the middle of spring it began to dry up and by summer it was dry, glistening white with pure white crystals

precipitated out of this mother liquor and there were a few small pools of the thick mother liquor still in the lake area. A geologist had been there and that's how I learned of it and the white crystals were pure magnesium sulfate, epsom salts, so they had very carefully fenced the area to keep the cattle out, because cattle ranged over the area and anyone that got in and had a good drink of epsom salts died.

I was interested among other things in the chemical nature of the different soils and the relationship of that to the plants which grow there, and I botanized the area carefully, and growing right in the white salt there were a dozen species and growing submerged, a submerged aquatic in the mother liquor, was one species. It's hard to understand how a plant could extend growing in a chemical solution such as that because when there was liquor there they piped some of it down to the railroad down below, Oroville, and they had to be very careful to drain the pipe at night otherwise the change in temperature would cause the precipitation of crystals which would split the pipe. (laughs)

A: And yet these plants were growing in this?

S: Well, I was asked to give a lecture on that next winter at the college to the research council, and I gave a lecture and had pictures and so on and told about plants growing in it. Well, it had been well established by experiment, mostly on crop plants, tomatoes, potatoes, corn, things of that kind, common crops, that .0004 percent of magnesium sulfate will kill an ordinary plant, and here were these few plants growing in a hundred percent. (laughs) There was a lively discussion after, and I have never been so politely called a liar before in my life. But I gave directions and urged my critics to go back and take a look at the place and none of them ever went. (laughs) But it was an interesting experience.

A: Well, you can understand their being skeptical. However, you knew you had seen it. You had been there.

S: I had pictures of it. Let's see, that first year... (leafs through notebooks)

A: This goes back to 1911.

S: Here we are Washington, there we are, that's the trip across the dry country. Well, in 1922, September, 1922, a geology professor came to me and said, "Don't you want to have a car?" "Well," I said, "I don't know." "Well," he said, "I've got a student here who's come to register and he's got a Ford car and he needs to sell the car in order to pay tuition to get into the college." (laughs) I'd never had a car and he was willing to sell it for a hundred dollars so I bought the car, and couldn't use a car much in the fall

there with all the mud roads around the place, but the next summer I started out on a trip. The next summer I went up into the Cascades on a trip taking a girl student along who lived near there, near Chelan and went up into Horseshoe Basin. Nineteen twenty-six. (still perusing notebooks)

Well, that reminds me of one area that I explored. Due south of Pullman was a fork of the Snake River, down in the canyon, and from the east out of the Coeur d'Alenes came the Clearwater River to join the Snake which came up from southern Idaho...

END OF TAPE 3/SIDE 1

S: ...that was the site of the city of Lewiston, Idaho, and across the river was Clarkston, Washington. The Snake River Valley was very interesting with quite a different flora from that of the Palouse plateau where Pullman was, and I had sampled it at various places and I became aware of the possibility of going up the Snake by boat. So I organized a trip. The first time I think it was two days, and in later years it was usually four days using Easter vacation for free time. We went in a power boat called the Idaho, owned and operated by Captain McFarlane, and it was a boat sixty feet long, open, powered by two airplane engines, two Liberty engines, and it could make sixteen knots. We could go up the river almost a hundred miles, going up numerous rapids some of which ran at fifteen knots. (laughs) So the boat would just creep up.

A: Did you get seasick on the river?

S: No. I took a smaller number the first time, but after the first trip it became rather famous and I could pick and choose the people who would go. And I gave first chance to the students in my botany course, and second chance to students active in the natural history club, and third to professors or townspeople who had automobiles who would help transport the gang, and then other people. I closed the books at sixty. I would take sixty people. We would start at five o'clock in the morning from Pullman, drive twenty-seven miles down to Lewiston, get to the boat landing, get on board the boat and at dawn, at six o'clock, we'd start up the river.

Usually we'd make anywhere from four to six or seven landings. Places I hadn't been I'd ask if we could land and the Captain would nose the boat up into the gravel bank and put a plank over the side and we could land there and I ran a pretty tight schedule. We'd stop at this place for twenty minutes, and the next place we'd stop about twenty-five or fifteen and I'd call the roll and off we'd go. We had a picnic lunch on the way up, but then we'd establish a base camp as far as we went and we'd spend two or three nights at

that camp. It was still the end of winter up at Pullman. (refers to notebook) This trip was May 8. Sometimes it was in April. But down in the canyon it was warm and sunny and everybody'd come back with a sunburn. (laughs)

There were two considerable rivers that came in, the Salmon River came in (that's well known now because people run down the upper Salmon River on inflated rafts) and the Imnaha comes down on the other side out of Oregon because as you start up the river from Lewiston on your left are the Craigs Mountains of Idaho, and on the right, the Blue Mountains of Washington, and then you cross the state line and there are the Seven Devils Mountains of Idaho and the Wallowa Mountains of Oregon. The canyon where you start is 2,000 feet deep. As far as you can go by boat, up to Pittsburg landing, the canyon is 7,900 feet deep, twice as deep as the Grand Canyon of the Colorado and only half as wide. It's a very spectacular area. It's not as colorful as the Arizona area--the rocks are mostly grays, and browns and dull reds--none of the brilliant or light colors that the Grand Canyon has.

I'd always arrange to have fish for the first dinner. I'd send word a couple of weeks beforehand to a fisherman up there and when we'd come along he'd have a fish tied to the bank with a quarter-inch rope, a sturgeon six or eight feet long. (laughs) A sturgeon is a lovely fish, just lovely, soft and sweet and nice and not a bone. Not a single bone in the fish; the skeleton is all outside, hard, bony outside and all soft inside. Everybody used to get a great kick out of that.

A: I can imagine.

S: And when we came down (we would go up at anywhere at from five to ten knots) and we'd come down at twenty-five knots with the engine just idling, just for steerage, whoosh. When you came down if you wanted to take a picture, you'd get your camera out, open it, stand up, and the picture was behind you. (laughs) It's one of the finest boat trips in North America. They still do it to some degree although they have captured most of the water for irrigation in southern Idaho. I'm told now that they turn the water on in the river one day a week.

A: It wouldn't be quite the same.

S: No. It's wonderful country. Well, I made six or seven trips up in there and I made one trip up into the high Seven Devils Mountains which overhang the canyon on the east. And that reminds me of a little set-to I had with the officials at Washington State. The president there had been a high school principal in Kentucky, and he treated the college students the way apparently he treated the high school

students. There was no smoking on campus, no drinking, there could be no social function of any kind except on Saturday night. Nothing could happen any other night. And I learned after a while that he had a rule that no faculty member was to leave the city limits of Pullman, which was about one square mile, without permission from the president's office. I paid no attention to that. I didn't think that was the life of an American citizen.

Well, after several years, at a faculty meeting the president reminded the faculty of that rule. And he said, "Well, now there's Professor Coe, and when he goes out of town he asks permission and so we know that he's in Spokane and he'll be at the Davenport Hotel. And if he's going to Seattle, we know he'll be at the Olympic Hotel and we can reach him. On the other hand, there's Professor St. John and when he goes out of town we don't know where he is." Well, he didn't, but the head of my department did. That is, I would tell the head of my department, "I'm going to Grant County or I'm going to Benton County or so..."

Well, the next week I thought I'd conform with the rules so I telephoned his secretary, a very nice young woman whom I knew, Amy, and I said, "Amy, I want to go out of town this weekend on a botany trip. Will you fill out an application for me?" "Oh yes, Dr. St. John. Where are you going?" "I'm going to the Hole-in-the-Ground." "The Hole-in-the-Ground--where's that?" "Well, it's about eight miles west of Oakesdale in the forest south of Bonnie Lake." "Oh. Where will you spend the night?" "Under a pine tree." "Oh. Can we reach by telephone?" "No." (laughs) Well, the next week I called her up and said, "Amy, I want another blank filled out. I want to go out of town on a botany trip." "Where are you going?" "I'm going to the Horse Heaven." "The what?" "The Horse Heaven." "Where's that?" "Well, it's on the ridge south of Ellensburg and Kennewick. It extends about forty miles from 2,000 to 3,000 feet altitude." "Well, where will you spend the night?" "Under a sage bush." (laughs) "Can we reach you by phone?" "No." Next week I called her up and said "Amy, I'm going out. Will you fill out a blank for me?" "Oh yes, Dr. St. John. Where are you going?" "I'm going up the Seven Devils." "Well, where are they?" "Well, they're near the mouth of where the Salmon River runs into the Snake, and they bound the Snake River Canyon in that area." "Well, where will you spend the night?" "Under a pine tree." (laughs)

A: Can we reach you by phone? (laughs)

S: I never bothered to call them again and never heard the subject raised. (laughs) Now, I don't know if President Holland learned of that exchange, but I imagine he did.

A: Three weekends of that was enough. So when you were teaching in Washington you stayed primarily in that area?

S: Washington, Idaho, Oregon. Mostly Washington because Washington is a big state and it has several mountain masses. The Olympics, next to the ocean, go up to 8,000 feet, and have a rainfall of 200 inches, have a temperate rain forest, enormous trees; the Cascade Mountains are a third of the way into the state from the Pacific, and they completely cut the state. When I was there, there was only one road across the state and that was open most of the year. Sometimes it would be blocked by snow, because the snow was heavy in the Cascades. For instance, at nearby Mount Rainier at Paradise Valley where they have a big hotel, the average snowfall is sixty feet. So snow is a factor. On the good detailed map of the state of Washington, which is three feet long and two and a half feet wide, I don't think there was an area as big as the print of my hand that I hadn't been in, so I did a great deal of field work there. Did abundant collecting. Named the easy ones; studied some of the others. Was able to finish some research papers, but I was teaching thirty-two class hours a week and had all the correcting and examining to do and so on.

A: So summertime and your vacation periods were about the only time that was open to you.

S: I used the weekends for short trips.

A: But that sounds like that was a pleasant time.

S: Oh yes, it was. It was a wonderful area, wonderful, wonderful. This set of collections that I made up the Snake River Canyon...I worked actively and my students helped me and I got massive collections. I had them worked up in a preliminary way and I had eleven undescribed species set aside, ready to write up, but I never got around to doing it and all of those have now been written up by somebody else, which is okay. And that set of collections...I finally got around to working over here last June. I've got it in preliminary form and want to write it up and hope I can publish it, but it'll be a pamphlet. It'll be sixty or eighty pages. Publication for scientific material is now so expensive that it's difficult. That is, we used to work, write up our material, had it published in a scientific journal free. Now almost every scientific journal makes the author pay fifty dollars to seventy dollars a page.

A: I had no idea of that.

S: So if you write a big paper, you're in for a big expense.

A: Well, how unfortunate because it would discourage anyone who didn't have some financial backing.

S: Or who isn't the head man in a big institution that will pay. I've never had that backing. Well, I haven't published on the Snake River, but I've worked on this, worked on the next thing that came along, finished some, not finished others, and I haven't been idle because this week I received another one of my publications. (displays) This is number 405 so I haven't been idle.

A: Number 405. Does that number include articles and books?

S: Yes, about six or seven books. So I haven't finished this, haven't got it out yet, but I don't apologize because I've been doing something whenever it was possible.

A: Well, we all have to establish priorities.

S: Now, for instance, when I came down here I had begun to write a new book on the flora of the region around Pullman, and I got about half way through. I came down here to the university and the museum and, well, for a biologist it's much more difficult to move to another area than it is say for a chemist or a physicist, because the chemicals are the same and the physics is the same no matter where you are, but when I came down here I recognized a coconut tree and I knew a dandelion and that was about all. And I had to learn the flora, and I had to administer the department. I came as the new head of the botany department at the university. Well, I pushed along with my project of writing flora of south-eastern Washington and adjacent Idaho. (displays map) There's Pullman and there's Moscow, Idaho, and here's Spokane. There's Lewiston. Here are the Blue Mountains. Here are the Coeur d'Alenes. Here's the dry country.

A: But it was several years later in 1937...

S: I had them ship the herbarium down to me in boxes, box after box, and then I'd return the box and they'd send me some more and they were very cooperative and allowed me to finish the account of 1,200 species which grow in that area. This was a new book. That is, I didn't copy word for word from somebody else's book. I described the plants and I made all the measurements myself. Quite a number of books that are published are just quotations from somebody else, the first man who named the species, just quoted verbatim and put it in their own book.

A: Now let's find out how the transition from Washington to Hawaii came about?

S: Well, I'd better stay with the northwest until I'm through with it. In 1923, in the summer, I had my first car and, as I said, I started out with two students and went through the dry country and up into the Okanogan. And then they went home. After that I went over to Mount Baker on the west coast near the Canadian border. I went with a zoologist, Professor William T. Shaw, who was a professor of zoology at the college and ran a little museum where lots could be seen that they had and he was an ornithologist and a mammalogist. That is, he studied birds and he studied mammals. Collected them, shot them, trapped them, made bird skin specimens, skins and was a research worker. He was a Canadian and as a youth he'd had...what's that disease that wastes the legs?

A: Polio?

S: He had polio as a youth and one leg was nothing but a bone so he always had to walk with a cane. He was a scholar, a gentleman, but a good man in the outdoors. He was a good mountaineer, climber. With that handicap you'd think he wouldn't do much, but he'd walk 2,000 feet down the Snake River Canyon faster than the students could. Never take any help. He'd ride a horse or a mule. He'd tramp in the mountains. Go anywhere except on a glacier. He wouldn't go on a glacier because his footing wasn't secure. That's the only thing he didn't try. He and I became very good friends and we often went on field trips together. And on this Mount Baker trip I went with him, my bride and I went with him.

Baker is a beautiful mountain, 12,000 feet high, perfect volcanic cone, with a dome of snow on the top and snow fields down the sides turning into glaciers, glaciers running down the valleys. There's one side there where the glacier runs two miles down into the forest which is unusual. Most of our mountains...the glaciers are on the upper third of the mountain away from the forested country. Baker's a beautiful mountain. The top, as I say, is a dome of snow, but there's a hole in that dome, oh, ten feet in diameter, with hot steam and sulfur fumes coming up through the snow. so Mount Baker isn't dead. Well, I climbed it and came down again. You're supposed to have very careful training before you go on the ice mountains, but I never had time to get the training; I got the experience. (laughs)

A: On-the-job training.

S: I succeeded in dodging the crevasses. I always had a rope with me, but without enough people to do very much with the rope. In connection with that, I might tell the story of one guide there who used to lead parties up on to Mount Baker from the north. There were other people who figured south was the side to approach, and they finally got in to a

big argument--which was the best way to climb the mountain--and they decided to test it by trial. A whole gang of them started from the north and raced over the mountain and came down the other side to see how long it would take. The next year they started at the south and raced over the north.

Well, this acquaintance of mine on the second trip took a shortcut across a snowfield or glacier, and he stepped on a snow bridge over a crevasse and fell down forty feet, and he was clad in sneakers and running shorts and a singlet. They had some check on the people, and when he didn't appear they went back to where he'd last checked in and eventually they found his tracks and found him, hauled him up and he survived after his experience in the refrigerator. (laughs) So you can get into trouble on a glacier.

A: Especially when you take off on your own. That's bad.

S: I picked out another mountain about which there was no particular botanical information, Glacier Peak in the Washington Cascades, two-thirds of the way north up the range, south of Baker, north of Rainier. Glacier Peak is a 10,000 foot mountain, a perfect cone, snowfields, glaciers, and I botanized there and have just written up the botany of it. That's another thing I never finished. I went there twice; once from the south, once from the north. Each time I climbed the mountain. I collected the flora, the plants that were growing there, and I got about six or eight weeds and they were down along the river on the northern approach where there was a trail and weeds would come in along the trail with pack animals. The rest of the country was absolutely virgin. There wasn't a weed anywhere. It was native stock, so it was a great pleasure working in that region.

Our first approach was with two of my students, W. D. Courtney and C. S. Parker. We went in from the southeast and made camp on Indian Creek on the east side of the main divide. Glacier Peak is very close to the divide (it couldn't be more than a mile or so) very close to the top of the divide. Our camp was in a nice forest of western hemlock, grand fir, Douglas fir and lots of herbs and ferns and so on. We botanized the side creek that we were in and then the main divide and, finally, got as far as the base of Glacier Peak. Then we took another day and devoted it to climbing the Peak. We went most of the way up a glacier, and the glacier was furrowed, furrows and depressions measuring about a foot or a foot and a half, far enough apart so that you couldn't stride from top to top, so it wasn't easy walking, but it turned out to be perfectly safe. Then we got on one of the rock ridges between the glaciers and went on up to the top. There were three or four species of plants that grew as high as 8,500 feet, but the summit was bare of vegetation, covered with snow and the rocks that stuck up here and there were without vegetation.

Somehow it always takes longer to do a thing than you think it's going to. When we came down it was dark, pitch dark without any stars, without any moon, when we struck the forest. The trail we'd been using was not a major trail. There was a perceptible trail, but I followed it down through the forest with my feet. Your eyes didn't tell you anything. I was able to poke away and get back to camp about midnight. (laughs)

The next time I went in was about two years later. We went in from the west and north coming up the Nooksack River and the White Chuck River and then, finally, as we approached Glacier Peak, cutting trail and getting up along Fire Creek to the upper tree line and we camped just at the foot of the meadows by the upper tree line. That was a lovely area, good botanizing, and I had as a companion a chemist, Dr. Joe Neller, a professor of chemistry at Washington State who went along with me. He was a very good companion. No botanist; however, he was helpful. Well, the time came when we wanted to climb that mountain and--I think I'll stop there--there's a party downstairs I think I'll look in on...

END OF TAPE 3/SIDE 2

December 27, 1985

- A: You finished talking about one of your trips to Glacier Peak. And I don't know that we mentioned the year on that. That was the trip that you were talking about Joe Neller going with you.
- S: That was the second trip. (perusing notebook) White Chuck River, Glacier Peak, that would be 1924. The other one would have been two years earlier.
- A: Well, I was just curious to see how far we'd gotten. Okay. We could talk about that trip with Joe Neller and then I would, as I said, like to get some on your family and your move to Hawaii today.
- S: I hadn't said anything about our activities on that trip except getting there.
- A: Yes, you were telling how you approached and so forth. I think you were just going to tell me about climbing the mountain.
- S: Yes, aside from botanizing the general area that's the only story. I should mention the actual day, shouldn't I? Yes, the time came when it seemed appropriate to climb the mountain, and July 24, 1924, with my companion, Neller, we started for the mountain. We had to circle the headwaters of several streams and make a half-moon sort of a course to get

to the base of the mountain, and we climbed largely on a glacier because the intervening ridges were very jagged and very steep, and it was easier and quicker to climb up the glacier. We found few plants up there; the vegetation pretty well stopped with the mountain meadows although there were three or four or half a dozen species which were on the intervening basalt ridges and we collected those, of course. But it took us, I don't know, maybe four or five hours hiking up the glacier and we got to the summit in the afternoon, late enough so that we felt worried. Well, will we get down in time? (laughs) So we looked over the summit, which we had seen from the other rim before and it was a bowl of snow piled up in the hollow crater of the summit, and then snow spilled over and made the snow fields and glaciers which went down the valleys.

Well, the time came to go and we started down, and I figured we could slide and make better time, so we sat down and each of us had a botanical pick. They are very much like a weeding pick, that is, with a slightly curved business end, a sharp point at one end and a cutting blade at the other, and then a handle about fourteen inches long, and we could hold the handle in one hand and hold the bladed end of the metal in the other and stick the sharp peak-like end down into the ice or snow, and use it as a brake, so that we wouldn't get going too fast. We went down in twenty minutes what we came up in five hours. We were able, lucky, I suppose, or perhaps it was good judgment, to take a course which avoided any crevasses, because crevasses are the dangerous things on glaciers and we got down rapidly.

But daylight was fading and we were still on the ice when it became so dark that we didn't dare continue sliding. So I was the leader and I headed for the side, headed for the rock ridge on one side of the glacier and got on it when it was completely dark. Well, the ridge was with flat spaces or sharp ridges or drop-offs and so on, and we had a choice: we could find a place where we could sit down and we could spend ten or twelve hours there gradually freezing (laughs) or we could keep moving. And I decided we'd better keep moving. So I was in the lead, and I felt with my hands or feet every step before I took it. That's reasonably safe, unless what you feel isn't strong enough to hold your weight when you get on it, (laughs) but in rock climbing like that, up or down, it's very good to have a three-point landing; that is, two hands and one foot or two feet and one hand and in that way it's reasonably safe.

So we travelled through a good deal of the night going down that ridge, and eventually got to the mountain meadows and although it was an overcast night, we didn't have either a moon or any useful starlight, but when we got to the meadows we could see well enough to make our way. Of course, we couldn't see each twig and we might trip on something, but

still we travelled easily and we got back to camp just as the sun came over the ridge. (laughs) So that was a long day.

A: Oh, yes. How cold would it be? What elevation were you?

S: The camp was at about 7,000 or 7,500 feet. It wasn't freezing, but it was cold at night. I suppose in the forties or fifties. The next day we didn't do very much. (laughs) Well, a botanist when he goes on a jaunt or expedition always comes back with plunder. He comes back with specimens and he has to take care of them, he has put them into press or they'll wilt so we had chores to carry on, but we took it easy for a couple of days. We made a very good collection on the north side, and that was a project which I hoped to finish, to write up, because nobody had ever reported on the botany of that mountain.

In the state the outstanding mountains were Mount Adams...There was an amateur botanist, a German immigrant, Wilhelm N. Suksdorf, who lived most of his life at the base of the mountain and had botanized the mountain all his life, so that was very well known. Mount Rainier had been botanized by various people and was pretty well known and pretty well written up. Mount Baker I wrote up, either just previous to that time or after, I don't remember which. It was in 1929.

A: We mentioned the trip to Mount Baker.

S: I'd already done that. So Glacier Peak was the last prominent mountain in Washington. It was a 10,000 foot mountain, very conspicuous, an outstanding peak, a very beautiful mountain which was unknown. Well, I've always been a busy, an active botanical student. Botany was my natural love. I like to explore, I like to find things, I like to study the plants that I've found, and I intended to write up an account of Glacier Peak. I think I mentioned previously another bit of work--oh, I mentioned the Snake River Canyon which I hadn't finished--well, I must say the same thing about Glacier Peak. I didn't write it up.

My research work has always been under my own direction. I've never been at a place where I've been told, "You must do this and it must be finished by July of next year" and so on, so I was very happy in being able to do my own work in the way I liked. Of course, I was limited by my employment. That is, I was a professor, I was a teacher, and I had hundreds of students and I had to talk to them, and direct their work, and correct them and give examinations and so on. Well, at Washington State I used to teach thirty-two class hours a week, and anyone who's been a teacher will confirm that that's a good deal of a load, and particularly because

in natural science, like botany, much of the material that you use in the laboratory is fresh material which you have to go and get yourself. You have to prepare for the laboratory for the next week. So I didn't finish all the things that I started. And it so happens that during the last month I have finished it.

A: Wonderfull! (laughter)

S: I had the bright idea that I could get this published--it's a real problem to get scientific work published--with the help of the big mountaineering club in Seattle, which is called The Mountaineers. Not the Seattle Mountaineers, but The Mountaineers. Well, the Seattle mountaineers have a journal, a little monthly leaflet, and once a year over the years they publish an annual volume and they printed my account of Mount St. Helens in that journal and said they liked it. So I wrote to them and asked them, "Will you consider examining and perhaps publishing an account of Glacier Peak?" And they wrote back and told me that they no longer publish an annual. I don't know why, because I think they have 10,000 members. It's a tremendous club, tremendous.

A: Did they offer an alternative?

S: Well, they did. They recommended that one of the professors at the University of Washington, that it happens I know, was guiding an amateur group, a nature lovers' group, and they had started a magazine, and they thought that he would be receptive. So I have sent it to him, and it hasn't been bounced immediately, and it hasn't come back, so very likely it will be published in a year or two. (shows copy of manuscript) This is just a xerox copy. You can see the glacier coming down the valley, and here's my companion going up the glacier, and here's a mountain meadow and so on. So it's now written up and probably in the act...state...will be published.

A: Ready to roll.

S: There's the peak. (referring to manuscript)

A: Well, it's great that you've been able to wrap up some of these things that you've had hanging for so many years.

S: A lot of these things take a long time. To settle a question of identity you often have to travel to a museum and see the specimen or borrow the specimen from England or from Paris or from New York or from Cambridge.

A: And as you say, when you're occupied, when your chief priority is teaching, when you're sitting in the middle of

the Pacific Ocean, when you have a family, and other...it takes time.

S: Not everything is finished. But I've mentioned that I've accomplished quite a bit in publication.

A: So that will make 406 now when you get that one published?

S: Yes, and I have several others that are out. I'm publishing about three to five papers a year. Some of them are big, some of them are small. The big ones, as I say it's difficult now, because most scientific journals charge the author fifty dollars a page.

A: That's a lot. You did mention that it could be anywhere from fifty to seventy dollars.

S: Yes. All right, where are we now?

A: Well, we have you down safe and sound off the mountain from your second trip at Glacier Peak.

S: We can stop there and turn to something else.

A: I would like to really cover some, as I said, of your family, your wife. You mentioned your wife. You said she accompanied you as your bride on one of these trips and I do know from reading, of course, that she was the sister of your friend Ralf Chandler, that you had known her for many, many years, from your childhood. Why don't you go back to the...

S: Yes, I was eight years old when I met her. Well, to give some recollection, some account of my future wife, I've already mentioned that she was the sister of a classmate of mine, with whom I played in his yard all through grammar school, and part of high school, and later became roommates with him in college, and they were a large family. His young sister, two years younger than Ralf or myself, Elizabeth Chandler, had five older brothers so you can see she grew up in an active family. Her father was a Boston lawyer, a very dignified, very scholarly man. Her mother was from a family named Poor in New York. The family was best known because of Poor's Manual of Railroads, and Standard and Poor's present day manual.

They were also a fine old New England family. I think I've described their house, their yard, so I don't need to repeat that. Betty was a fair-haired blonde, of moderate height, five feet six or seven, slender, and a girl who naturally was trained to have strong family feelings. They liked their relatives and had frequent contact with them and she became a very gracious and excellent hostess when she had a home. She went through a number of years of the same

grade school where Ralf and I were, the Pierce Grammar School of Brookline. But after--I don't know now quite how many years--I would think about the fifth grade or fourth grade perhaps--her parents took her out of the public school and entered her in a girls' private school in Boston feeling that they wanted her to have that kind of education. It may be interesting to state that I went to her mother to protest that they shouldn't...(laughs)

A: And you were probably what, about thirteen years old at the time?

S: So you can see I had some interest in the girl, but I had to accept Mrs. Chandler's kind explanation that they really were responsible for the education of the girl and they were doing what they thought was best. (laughs) However, there was no break. She still lived in the same house with the boys and she still played in the yard with us, but she no longer was in the same school.

Her education continued in the private school (can't recall the name) but she went to a girls' private school which still continues, exists. It was a good-sized school. After graduating there, she entered Radcliffe College, which is in Cambridge, right next to Harvard. At that time it was separate and had no organic connection to Harvard, but served as the feminine institution for the area and at least fifty percent of the professors at Radcliffe were Harvard professors who got extra money by teaching a course at Radcliffe. She graduated from Radcliffe College in 1916, and I don't remember what she majored in, but it wasn't science. However, she took the botany course, systematic botany, which was taught by Professor Fernald, for which I was the laboratory assistant.

A: Did she get an A?

S: No, she didn't. She passed though. (laughter) No, she was not the leading student. She was my girlfriend during all those years, and I used to take her to club dances, one thing and another, football games. After she graduated, she went to Boston Normal School for one year to get some instruction in teaching school and then she got a job as a school teacher in an elementary private school in Cambridge, which was an outdoor school. The building had a roof but nothing else, so they dressed for cold weather in the winter and classes were conducted exposed to the weather.

A: Oh, in that climate!

S: Yes. I couldn't see much sense in it, but it's possible to dress up, you know, and take it. And she taught school there for five or six years. She took one big trip. Her brother Ralf had married at the beginning of the war, married

Carol Ramsey of Wilmington, Delaware, one of the DuPont families. And although he had majored in art, he immediately got a job after the war working at Baldwin Locomotive Works in Philadelphia, manufacturing railroad locomotives. Don't ask me why. (laughs)

Well, Ralf was a very, very capable man, very clever at mechanical things and with a real talent for leadership of people. He was always the head of everything that was going on. Well, he was sent down to Buenos Aires to sell Baldwin locomotives, small ones, to the sugar plantations in Argentina. He was trying to take the business away from the British, and I understood that he did so very successfully by arranging not only the sale, but the banking arrangements for the sale which the British didn't do. The British said, "You've got to have the money," but he helped them get the money, and he was there a number of years. One or two of his children were born down there.

So one summer his sister Betty, Elizabeth we called Betty, took the summer and went by steamer down to Rio de Janeiro and on down to Buenos Aires and stayed with Ralf and Carol and had a very interesting time. Then came home by taking the Transandine Railroad over the Andes to come down to--is it Chile or Peru?--Santiago--I think it's Chile. It was a continuous journey, but they had to change trains--that is, one kind of train did the mountains and another kind of train did the lowlands. And there was one place where they had to detrain and wait for the next train to come along and they were at high altitudes in the Andes and she got out there, a lone, foreign girl, and apparently she was befriended there by a family who urged her to come with them and stay in a house nearby for the five hours they had to wait for the next train.

Well, they made friends and when they got to Santiago they urged her to come and either visit them or stay with them, I don't remember which, but she went there and she described the first dinner that they had there. There were servants and there was a big family at the table and they had wine. Well, she was very much of a teetotaler at that time, but that's all there was to drink, wine, and she had learned a little Spanish and the servant was always coming trying to refill the wine glass that was in front of her and she drank a little of it and when he came again she said, "Bastante." Well, that's perfectly good Spanish. It's the correct way of saying, "That's enough." But apparently in Chile "Bastante" is sort of a slang expression saying, "Fill 'er up again, boys." (laughs) So she never could keep up with the wine at the meal. She told it very well.

A: And she travelled by herself this whole trip?

S: Yes, she came up the west coast by steamer, through the Panama Canal. Well, after that trip, we came to...I'd already gone West and for two years had been living and teaching in Washington State at the college in Pullman.

(Tape interrupted while an acquaintance of Dr. St. John's gives him a hug and brings him up to date on her activities on Maui.)

S: She's an amazing girl, Betsy Gagne, for fun she would build a fence around Haleakala National Park at 6,000 feet, building fences, she's amazing. Well, where were we?

A: Well, we had you out West for a couple of years teaching and, I think, you about decided that you were going to resolve something with Elizabeth. (laughs)

S: Yes, Elizabeth and I came to an understanding and we got engaged in August, 1921.

A: Was it kind of understood over the years that this was eventually....

S: It was understood for a good deal of the time and then it was accomplished in 1921. So she went back to her teaching job. I returned to Pullman and made plans for getting married in 1922. And I went East and we were married in the First Parish Church in Brookline, Massachusetts. We had two ministers to do a good job. One of them was Dean William W. Fenn of the Harvard Divinity School who was a very intimate friend of my father's. We spent the whole summer in the East. We spent our honeymoon at Lake Sunapee at the Chandler summer home in New Hampshire, and then we came back and visited family from Boston, Brookline, down to Delaware.

Betty's mother had been dead for several years; Betty's father died that winter before our marriage. But I had formally written to him asking permission to marry his daughter (laughs) although she was old enough to make her own decision. You see I was raised under the old system. So her father's home, which at that time was half of a duplex, with her maiden aunt, Lucy Poor, living in the other half, her father's home was being broken up, so Betty and I could go around and say, "We'd like that," "We'd like that," "We'd like that," and "We'd like that." And my own parents' home had been broken up because my father had been dead for some years and my mother was living in boarding houses, and much of the family goods was in storage, in storage warehouses, so we could go and say, "We want this table," and "We want these six chairs," and so on. So we were able to furnish our home before we had it.

We made plans to ship it by freight, by train, to Pullman, Washington, and we shipped it ten days or two weeks before we expected it to get there and it arrived a week after we did. In the meantime, I'd bought a house, bought a two bedroom cottage in Pullman at 305 Howard Street, quite close to where I was boarding, and paid for half of it immediately and the next year was able to pay the rest of it. I bought the house for \$2,400.

A: That might be your closing costs today if you were lucky. (laughter)

S: Well, my salary as an assistant professor at Washington State was also \$2,400. So you can see the financial basis of things was much less than people today can understand. In the meantime, I had received an inheritance from my mother. No, it was an inheritance from Mary Lyman, my aunt, which brought me in about fifty dollars a month and that fifty dollars a month in addition to my own salary, well, it didn't make me a rich man, but I was prosperous. I was able to buy books and do little extra things and over the years my income increased.

I tried to prepare my bride for the conditions. She was very spunky, very open-minded, very willing to meet circumstances and accept them, but Brookline, Massachusetts, is a lovely place and they had a splendid home there. Pullman, Washington, as I said, was a place of 2,600 inhabitants in the wheat fields. There were no trees, it was a rolling, prairie country, so I explained to her that the climate was very rigorous, very extreme and you were exposed to the wind, and exposed to dust storms and one thing or another and it wasn't as easy a place to live in as Brookline.

Well, when we arrived on the train we were met by Dr. F. L. Pickett, who was head of the department, his wife, I guess, and some others. They'd been informed when we were coming, and we got there a few days before the college opened. We walked out and got to the platform of the passenger car and Betty looked up and said in a loud, clear voice, "Harold, there's a tree." (laughs) Well, that meant something to me, but it meant something else to the inhabitants of Pullman.

A: Well, aside from the climate, I would think the cultural shock from the Boston area to Pullman would be something else for her to cope with.

S: Well, here's an example. A week or two after the college started, they had a faculty reception. The faculty was there and the students were there in the gymnasium, and we went, and I don't know how, but she and I were separated. She was turned over to a bunch of faculty wives and I was

somewhere else, and they came up to her and asked who she was and she said, "I'm Betty St. John. I'm Harold's wife." And where do you come from? "Oh, I'm from the East." What part of the East? "Oh, Massachusetts." What part of Massachusetts? "I come from the town of Brookline." Oh, she's a country girl, she comes from the town of Brookline. (laughs)

Well, any settlement in the West with 2,000 people would be a city, and Brookline, I suppose, had 50,000 inhabitants or something of that kind and was the most prosperous, wealthiest suburb of Boston. It was nearly a year before anybody came along who knew that the town of Brookline was not just a country town. (laughs) So Betty got off with a fair start and she got along very well with the people.

She travelled with me in the summers and we did field work for the first two years there. I think it was the second year, we had one trip when I went to Mount Aix A-I-X, which is down in the Yakima Valley in central Washington. It was a mountain that nobody had ever botanized. I went there and I couldn't find any pack horses or saddle horses. I skirmished around and finally found a forester and he had one horse but he wouldn't loan it. But he said, "There's a horse in a pasture over here that belongs to a man who's been gone for six months. I've got a pack saddle I can let you have and I'll get the horse and get it ready for you tomorrow morning."

So I got there and he brought in the horse and he said, "The horse is kind of bunch grassy. That is, the horse is feeling his oats. He's been wild for six months, and I had to rope him and drag him for a hundred yards in order to gentle him down a little bit. You may have some trouble with him." Well, I didn't have a saddle horse, I'd only this pack horse. Together we packed the horse and it had a bridle, no bit, just a bridle, just a halter and a rope from the halter. I had the rope, so we started up and we found the trail and this horse was full of ginger, full of energy, ready to go up the trail and I was dragging behind. Once in a while I'd snub the rope around a tree and slow him down so we could catch our breath, but finally one time came along and Betty said, "I can't go another step." Well, I'd advised her when she had trouble keeping up to take the horse's tail. You can hold the end of a horse's tail and the horse can't kick you. He can kick, but it doesn't reach that far. And going up a mountain you're at an angle, you're perfectly safe. You can go steaming up a mountain if you hang on to a horse's tail, but Betty wouldn't do it, although she could ride a horse--she'd been around horses--she wouldn't do it.

And then, as she told the story, she said, "I came to, and Harold was swearing at me." Well, that wasn't the usual way that I treated her, but here I had a half-wild horse and

a bride and I wanted to keep them together (laughs) so I guess I talked to her the way I talked to the horse.

A: Actually, you were facing towards the horse when you said it, and she misinterpreted it. (laughter)

S: Well, I brought her to, and she came along, and we got the two of them together up into the meadows at the top of the mountain. And we spent a day and a half there, spent the night, botanized around and we came down. So that's one of the incidents of breaking a bride into activities in the West. (laughs)

END OF TAPE 4/SIDE 1

A: Did your wife travel with you on many of these trips?

S: Well, after two years or two and a half years we had our first child, and Betty was very attentive to the child. Well, she and the baby would go on day trips and weekends in our Model-T Ford, but she didn't go out in the summer for expeditions. Two years later we had another child.

A: Now which came first as far as the children went? Who was your first child?

S: Our first child was named for my father, Charles Elliott St. John. The second was Robert Pierce St. John and that was the family that we had while we lived in Pullman. Let's see, is there anything else I want to say before we leave Pullman?

A: And what years were the boys born?

S: Nineteen twenty-five, January 1, 1925 the first boy; the second boy was, I think, April 19, 1927.

A: So they didn't spend too much time, just their very early years, in Washington.

S: Right. Washington State was dominated by the College of Agriculture. Actually, there was a College of Engineering, and there was a College of Sciences and Arts, but that was rather secondary in so-called "Cow College." My office and herbarium was on the ground floor of a building in full sight from a pathway on top of a bank on the campus that went by, so people could see if I was there working or not. And I was ambitious and I was trained to work the hours that were available, while in the College of Agriculture building, Wilson Hall, at four-thirty the lights went out. Everybody went home.

Well, at four-thirty I would get out of the laboratory which I was teaching and I could get into my office and start to work. I had to be home at six o'clock so I would stay there. So I got in very bad for quite a while with a lot of the faculty. I was breaking the union rules. I was working too hard. (laughs) But I survived it and there were some good people there and a lot of them, well, accepted the fact that I was a crazy guy.

A: They hadn't heard the term workaholic in those days.

S: Oh, my no. (laughter) But the college treated me very well. Usually they were able to pay me a little for my field work, give me mileage on my car for the trips that I went in the summer and they treated me as well as they could. The head of the department was splendid. On one of the trips we had a somewhat strained experience. On one trip, two of us joined Professor Shaw and went in on the north side of Mt. Baker and that was the first of August. Well, I hadn't received my June paycheck by that time. They always made up the payroll, then sent it to the chairman of the board of regents who lived in Seattle. I think he was a banker or something like that and he had to sign the payroll before anybody got paid and they never got paid on the first of the month, never before the fifteenth.

But this year the June paycheck hadn't come, and I went away, and the July paycheck hadn't come, and this was August and finally at the end of August I received the June paycheck. I received it in Bellingham, Washington, when, on a Saturday afternoon, the banks were closed and I wanted money. We hadn't anything to buy food with. I went to one after another of the bars where the lumbermen came down from the lumber camps in the mountains with their paychecks, and cashed their checks in the bar, and drank a lot of beer and so on. And nobody would accept a state check, so we lived the weekend at a tourist camp there. We had mighty little to eat I remember before I could find a bank and get my June paycheck cashed. So it was a little uncertain.

The only person who handled that situation was a woman instructor in art--what was her name?--she lived in an apartment over the mess hall, and she was supposed to pay the rent the first of the month and she refused. She said, "I'll pay you on the first of the month when you pay me on the first of the month." (laughs) And she got away with it.

A: She was absolutely right.

S: She was the only one who had courage enough.

A: She was the only one who had the opportunity. So after a very pleasant few years in Washington, what brought you then next to Hawaii?

S: Well, I spent nine years and my wife spent seven years in Pullman, Washington, and late that last spring I received a letter from the University of Hawaii, from the president, saying that there was an opening and would I be interested in teaching botany at the University of Hawaii. Well, I was very happy where I was. Pullman was an excellent place to do research work. It's one of the most interesting, most varied parts of the United States, beautiful scenery, high mountains, river canyons, desert. It was splendid and I had a lot of research work underway, such as some of those things that I hadn't finished.

Well, I corresponded back and forth with the president and I never did get an answer to all of my questions, but eventually the time came halfway through the summer, take it or leave it, and he offered me a professorship and a chairmanship of the botany department, a small botany department at the University of Hawaii, and I decided to take it although I had never been in the tropics. When I arrived here, I recognized a coconut and I recognized a dandelion when I saw it, but that was about all. A biologist has a more difficult task than a professor of physics, for instance, when he moves because a botanist has to know all of the plants of an area, so it was a new experience for me.

A: So you had never visited. You accepted the job without ever having been to Hawaii.

S: So in 1930, in early September (recorder turned off again while Dr. Seymour Sohmer speaks briefly to Dr. St. John) That's Dr. Sohmer, the chairman of the department. We had an interesting journey out. I shipped my furniture having summoned a packing firm from Spokane to come down and pack my goods. They said, "How big is your house?" I said, "It's a two bedroom cottage." "Well, we'll send one man." "Well, you'd better send more." He said, "No, we'll send one." One man came down and looked at our place and immediately telephoned Spokane. "Send another man." (laughs) Because we had a lot of furniture, we had seven barrels of china, you know, a lot of family goods.

A: And if you brought this from the East, there were a lot of heavy, big pieces.

S: And I told him to pack the goods as if they're going to China, because they're going by railroad and boat and so on and we shipped them. We drove in our car, Betty and the two boys and I and Betty's aunt, Miss Lucy Poor, who was visiting us at that time. During the latter years when we were out there, one year she would come to visit us in the winter and the next year my mother would come so we often had family visitors. Well, we drove down and I managed to go to Mount Hood and drive up to Cloud Cap Inn and we spent the night in

the mountain meadows of Mount Hood, Oregon, before we got onto the boat. It was a lovely experience.

We caught the boat in Portland, Oregon. The Matson Navigation Company had passenger ships. On one trip they went to Portland and the next trip they went to Seattle. We got on the boat and we had a hundred miles down the Columbia River, a lovely trip, and then the five days to Honolulu. We were greeted there by a classmate of mine from college, Bill Hoogs. He'd been in the same class that I'd been in at Harvard, but only stayed one year, his freshman year, and was immediately summoned home because his father had died and there were six more children in the family and somebody had to support them.

So Bill went back home and went into real estate in the firm of Love and Hoogs, and he being in real estate helped us get settled. He took us to a small cottage hotel, the Makiki Hotel, and we stayed there for a month and during that month I got busy learning my job as a teacher, and Betty skirmished around with various real estate people and finally found a nice home on Oahu Avenue, two blocks from the university. It was a three bedroom, two and a half story building, nice grounds, 12,000 square feet, a lovely home, and I bought it for \$14,000, which was a very large sum. I had to cash in much of my capital in order to buy it.

A: In 1930, that was.

S: It has recently been declared an historic mansion (searches for recent publication showing picture)...here's the Grace Cooke/St. John historic mansion.

A: Well, who owns this house now?

S: My wife persuaded me to build a cottage in the back yard and then the next year three of the children went away. Then it passed through several hands. It's now owned by Professor Charles Bouslog who used to be chairman of the English department at the university. I live in the backyard over a garage. There's nothing more than this. There's a sheet describing it and why and so on. Just a picture. Now where are we?

A: Well, we have you all settled in this lovely home.

S: Yes, after a month we moved in and were very happy. It was a charming home. And a similar house next door was the residence of David L. Crawford, the president of the university at that time, so we had good company. (laughs) [David L. Crawford held this post from 1927 to 1941] (recorder turned off during phone call)

A: Well, we have you settled in your lovely home next to the Crawfords.

S: Well, my wife and I had two more children. In 1930 our daughter Mary Merrill M-E-R-R-I-L-L was born and in 1932 our daughter Martha Everett was born and that made our family. It might be interesting to note that one of our colleagues, a professor at the university and his wife, who were very good friends of our, nice people from the East as we were, asked if we wouldn't have another child and turn the baby over to them in the good old Hawaiian manner.

A: They wanted a hanai daughter or son or whatever.

S: We talked it over, of course, and I knew it was an old Hawaiian custom, particularly among the alii, and that it was a compliment, but we decided not to do it. (laughs)

A: I can understand that.

S: Here's a family reunion three years ago (displays photo taken in front of the Harold St. John Plant Science Laboratory). Here's my oldest son Charles, and the second son Robert, and the oldest daughter Mary, and Martha isn't there. She and her family didn't come over. They were on Maui and we were going to Maui and they didn't come to Honolulu to get photographed.

A: So this is the one (pointing to Mary) that you went on the raft trip with.

S: Yes. And here's her husband. And here's Robert's wife--she just died. And here's Charles' wife and their only daughter and her first daughter. She now has two.

A: So how many grandchildren do you have?

S: Eleven.

A: And great-grandchildren?

S: Two.

A: And where are the boys now?

S: The oldest boy is a mechanical engineer and he lives in Princeton, New Jersey, but he works in Trenton, in the De Laval Company factory there.

A: And the other son?

S: The other son Robert lives in Cupertino, California, and works in nearby Santa Clara where he is head of the research

department of a company of twelve hundred people that makes computers.

A: And this daughter's still in Colorado?

S: New Mexico. These are the four daughters of Robert and Mary's three children are there, there, and there. Two boys and a girl.

A: Well, they're not quite as prolific as the Chandler side, but you have a nice group there.

S: No. (laughs)

A: So everybody actually grew up in Honolulu, Hawaii.

S: Yes, they're Hawaiians. Of course you can tell it by looking at these blondes, blue eyes.

A: Did they go to schools here?

S: Yes, they all went to public schools. They went to Lincoln School, it was a grammar school, now called Linekona. Well, in wartime some of them went to Manoa School because they lived near there and they weren't allowed to go as far as Lincoln. They all went to Stevenson Intermediate School and to Roosevelt High School when they were English standard schools. Do you know that system?

A: No.

S: It was a thing that was introduced by one of the university, the wife of one of the University professors, years ago that they have a set of special schools in which to be admitted the pupils must grow up in homes that spoke good English. And to prove that, they had to be interviewed by the teacher and their parents had to be interviewed by the teacher. Their complexion, their ancestry, made no difference. Could they talk English? [The English standard system began in 1923 and was ordered phased out from the period 1949 through 1960]

A: Oh, and this was in the public school system?

S: Yes, in the public school system. And our children went through the whole series of English standard schools which were far better than the average public school which spent so much time trying to teach the Orientals English. Not that there's anything wrong with being an Oriental.

A: Right, but it's just the difference in...the language is just absolutely essential to education.

S: We were active in various haole groups and we were members of and active in, most of the time, Central Union Church. We were under much pressure, social pressure, to send our children to Punahou. But we couldn't afford to, and we didn't want to. We preferred to have our children go through public school training, and if they couldn't prepare themselves for college that way, too bad, it was their fault, not the system.

The oldest boy was admitted to Harvard, but then the war came and after the war he had one year at the University of Hawaii and flunked a course so Harvard wouldn't take him the next year. So he finished at the University of Hawaii. The second boy came to the University of Hawaii as a freshman, and was an A student, and then transferred to the University of Chicago, his own choice. Mary we sent to Radcliffe because that's where Betty had gone. Martha we sent to Smith College because that's where her grandmother had gone. So with public school training they were able to go to...

A: Top-notch schools.

S: ...good schools.

A: So tell me about your activities here in Hawaii, you and Betty. You were active in the church, and she was busy raising the family. She never went back to teaching, did she?

S: No. She was active in school and social things. She eventually became very active in the Parent-Teacher Association and became president of the Parent-Teachers' Association of Hawaii. She also became president of AAUW, the American Association of University Women, the Women's Campus Club at the University. She always, in a year or two, became the head of each group that she was in. She didn't always stay with that, but at least one time, and she was very hospitable, she loved to entertain, and we were able to afford it, and that was very obvious in wartime when the soldiers came through here in great numbers. There was one time at which, on the island of Oahu, there were one million servicemen.

A: I never realized it reached that great a number.

S: And every once in a while they'd have leave, and come to town, and if they had any connection through family friends and so on, they'd telephone and we entertained a great many. Some of them we gave the privilege of the house. The basement door was left unlocked and they could come in at eleven o'clock at night, bunk down there, and in the morning come up for breakfast.

A: The inevitable question: Pearl Harbor Day. What were you doing and how did it affect life at the university for you?

S: Well, that was on a Sunday when all the servicemen were sleeping off their drunks. I was leading a field trip with students into the Waianae Mountains and I was going up just south of Kolekole Pass. Well, I turned in the way that I knew. I had two or three cars following me. I was the leader of a mountaineering group always. We didn't go quite the way the Trail and Mountain Club, (indicates a galloping ascent and descent) up the mountain and down, so some people preferred to go with me than them. We spent more time, but we went more slowly and I talked about the plants.

Well, I started in towards this area and the road had been changed. They plow up the pineapple fields every three or four years and change the roads. The first thing I knew the road made a twist, a turn around, and we ended up at Leilehua School, a public school a little bit this way from Schofield. I had just turned around and along came an airplane and "Boom" over Wheeler Field. And another airplane and "Boom." Well, for a month the military had been on a war alert, those were the orders, but their sentries at the post had no ammunition. Sunday morning they were sleeping it off, most of them, they were caught completely unprepared. Well, after the first bomb dropped, there was so much dust and smoke that I couldn't tell just where the bombs were dropping, whether they were on the field, or in the guava brush, the wasteland beyond Wahiawa. They'd been holding maneuvers all through that month. We sat there. We got out and sat on the fender of the car and watched the bombing, and I didn't know a Japanese plane from an American plane, but it suddenly became obvious when one of the hangars began to burn that it wasn't maneuvers.

What should we do? Well, I wasn't in the Army and a civilian in wartime is of no interest to the Army so we went on and climbed our mountain. When we got about halfway up, we were disturbed because a shell from one of the big guns on a battleship hit right beside us and exploded on contact. That is, the sailors on the battleship were so rattled that they were shooting their big guns at airplanes and shooting them without setting the fuses, so they went fifteen miles, hit the ground and exploded there. Two or three shells came along and hit close to us, but didn't hit us. And we went on and climbed the mountain, and came down, and one or two of the students were dilatory or got lost or tangled up in the lantana brush and it was almost dark when they got back. The other cars had filled up and gone home and I was waiting for the last students, and they finally showed up and we started down the Kunia Road which parallels the Waianae Mountains and it was almost dark.

Well, a motorcycle mounted policeman came by and he yelled as he went past, "Watch your lights, buddy." Well, I was stupid, I guess, so I turned my lights on. (laughs) He meant--I had my parking lights on--and then I turned on my full lights. Then we drove on and got down near Pearl Harbor and a police car stopped us with a couple of policemen in it, and one of them--I guess they both came back-- "Oh, what have you got your lights..." (demonstrates policeman's behavior at having his lights on) and the other one said, "Oh, that's Dr. St. John." He'd been a student at the university. He said, "Doc, what are you doing?" "Well," I said, "we've been in the mountains and we're going for home." "Well," he said, "you can try to get home if you want to. It's hard going, but turn your lights out." So we turned them out and went along a little ways, slowly, approaching Pearl Harbor, Pearl City, and the police came back, the same car, and one said, "Follow me." So I followed them and they turned into Pearl City police station and they came out with a can and a paint brush and they put blue paint over my headlights and they said, "Don't turn them on unless you have to."

So we went on. Well, we got down on to Dillingham Boulevard and the traffic was crazy. They were driving without lights and it was almost pitch dark and they're driving sixty or seventy miles an hour. And I saw two cars coming along and I figured they were going to hit and they did, they sideswiped. I pulled down into the gutter and stayed there. And these cars did this. (demonstrates) Well, I went up to one of them and there was nobody hurt and I figured he could take care of the other one if there was anything to do, so we went on.

Well, I have pretty good night vision, and I knew the land and I was able to deliver my students to their homes and I got home about eight-thirty or nine, I guess. I went up the back steps--I guess I had my oldest boy with me--and met my wife there and she said, "Well, the war's on." And I said, "Well, I gathered that." And she said, "You're block warden." And I said, "What's that?" She said, "You're supposed to patrol for lights and see that everything's in order around the block." "Well," I said, "how about supper?" But she says, "You're a block warden." I said, "The heck with block warden. I'm hungry. You don't fight a war unless you eat. I fought one war and I know that much." (laughs)

So I came into the kitchen and she'd blacked out some windows in one or two of the rooms and we had a little light in the house and I sat down, getting ready to have something to eat, and she said, "I've been around the block in your absence, advising people what to do and people who had no place to take shelter, no safe bomb shelter, invited to come to our house in the basement." Our basement was a stone basement with thick stone walls. "And there are twenty-two

people in the basement. And one of them is a Navy wife with a loaded rifle." I wasted no time. I went down and got that rifle. (laughs) I didn't want a nervous woman with a loaded rifle underneath me. So I had supper and then I went out and walked around the block. I don't think there were any lights then.

And I did that volunteer work for some months. It was a nuisance. But one thing I learned; there are a lot more thunderstorms and a lot more lightning than you realize when you live your ordinary life here. But when you're patrolling in the dark, there are more thunderstorms and more, mostly distant lightning, flash lightning from one cloud to another. I thought there was almost no lightning here, but there's a lot.

A: Right, but with the lights on all the time we're not aware.

S: You don't realize.

A: Well, how did this affect things at the university?

S: The university continued. During that night the military sent a party to occupy the university and they came up and they got as far as Oahu College, the old name of Punahou, and that looked imposing so they drove in there and the only person there was a night watchman and he couldn't keep them out so they seized Punahou when they meant to seize the university. (laughs)

Well, of course, the beginning of the war disrupted everything for awhile. [The University of Hawaii closed after the December 7, 1941 attack on Pearl Harbor and reopened February 2, 1942. Out of 2,420 who were enrolled at the time of the attack, 861 returned. More than one fourth of its 160 instructors were in war work.] But, very quickly, the university resumed although the men were mostly in ROTC, in militia training, at the university. And, very quickly, by military orders they reshuffled the ROTC into two battalions, one battalion white, haoles and the other battalion, Orientals. And then they discharged the Orientals and those boys became the 442nd.

A: The famous division that went to Italy. [442nd Regimental Combat Team]

S: You know that story. Well, most of the men disappeared and within a few months at least half the faculty took off on various assignments. So the university was pared down to crippled or disabled men and girls. I don't know what the enrollment was, but it was about a third of what it was before, something like 1,500 students. And we had only two botany professors at that time, but we continued and my usual

method of teaching systematic botany (I taught the elementary botany also) was to emphasize field trips. We used to go every third weekend, every third Sunday, all day in the mountains.

Well, we received only ten gallons of gasoline a month for a car regardless of the car, the size of the car, the condition, only ten gallons. Well, that was about enough to get you to the grocery store once or twice a week. So I was very much hampered. So most of our field work during those two or three years was in the Water Reserve back of Honolulu City, which we could get at with short trips and we had one person who joined us--he was a dentist and being a dentist he got more gasoline--that is the medical and dentist people got all the gasoline they wanted, which was okay, but that allowed us to use his car so we did a lot of work up Palolo, and Nuuanu and Halawa.

A: We have a little ways to go here or is that a good breaking point for today?

S: Well, after I guess about a year, I had a call to do military work down in South America. Have I told you about my hunt for Cinchona bark for the quinine?

A: No, I read a little bit about that...for the quinine. If we get interrupted, we can pick it up next week. I read a little bit about it. That was in Colombia.

S: When the war was imminent, Congress passed an act creating the Foreign Economic Administration and ordering the Secretary of Commerce to stockpile strategic military material; rubber, tin, nitrates and so on, including medicines, including quinine. The Secretary of Commerce was Jesse Jones of Texas, a big Democratic politician, and Jesse thought the price for quinine was too high, so he didn't buy any. He violated the law. The law said buy these elements and for a year and a half he did nothing. By then the Japanese captured Java which was the commercial producer of quinine. They had imported trees from Peru, and cultivated them and selected high-yielding trees and made a medical industry in Java. So we entered the war without any quinine. About to send our troops into Pacific and Asiatic islands where malaria was endemic.

Then they had a scare program. What'll we do? We can't buy any, we must go and find it ourselves. So they sent teams to South America. First, they went to Peru as Peru was the source of Peruvian bark or Jesuit's bark, so called, that is the source of quinine that they had learned from the Aztecs who knew its value. They had used it for thousands of years, but in using it they had exploited it and there was no considerable amount left. Essentially it was gone.

So we sent teams to Ecuador and Colombia and to Venezuela and to Guatemala. In Guatemala there was none; in Venezuela there was a little in the mountains on the Colombian border, the edge of the Andes. In Colombia and Ecuador, both countries, they found quantities of it, but it was unknown to the inhabitants. They didn't know the tree was there, they didn't know its properties, they imported their medicine from Peru. In all those centuries, they hadn't learned what the tree was, though they had it.

There were six species in Colombia; one species was a big tree of the lowlands with thick bark, but that tree yielded only about one percent quinine in the bark. The other five species grew in the middle and upper forests on the mountains and they were smaller trees with thin bark, but the bark had anywhere from five to eight or ten percent quinine. So it was a good source of medicine. We sent a mission down there. The original government mission that was sent consisted of foresters because Cinchona is a tree. C-I-N-C-H-O-N-A is a tree and Cinchona is a plant.

So they sent a forester and a botanist. Well, now the American foresters get a good training on North American trees--they get to know white pine, they get to know yellow pine, they get to know redwood, they get to know Douglas fir, and so on. They know about a hundred trees and nothing else. They are not naturalists, they don't know the plant families, they don't know the Rubiaceae, which is the family in which Cinchona is a genus; they don't go as a newcomer in an area and recognize that that tree, because of the shape of its flowers is a member of the Rubiaceae, so they very quickly discovered that the foresters were worthless. The American foresters were of no use in exploring for Cinchona in South America. So they decided they needed botanists.

Well, the man in charge in Colombia was Dr. F. R. Fosberg who had gotten his master's degree under me. He was my former student. He was working at the Smithsonian and he was in charge of the Colombia project, the botanical side of it. He didn't run the office. "Well," he said, "now what we need are botanists to find these trees." Because the Cinchona down there were second stratum trees. They were not the big trees, not the 150 or 200 foot trees. They were the second story trees in a big forest and nowhere did they make solid stands. It wasn't like a yellow pine forest, nothing but tree after tree of the same kind. They were scattered here and there in little groups under the big trees, so you had to hunt and find them. And it took a botanist to do that. So he said we need...

END OF TAPE 4/SIDE 2

January 3, 1986

A: Dr. St. John is going to backtrack a little and tell us about his trip into the Seven Devils--are they mountains or hills?

S: Mountains.

A: Mountains. All right. (Dr. St. John cannot locate dates at this time so decides to continue with the Colombia story) Okay, then. Can we pick up on the trip to Colombia? You had just started to tell us about that. How Dr. Fosberg decided they needed botanists more than anything else.

S: Very well then. We'll resume the story about exploring in World War II in 1943 in Colombia for the Cinchona tree, the bark of which is and has long been the source of an excellent medicine for malaria known as quinine. As I said, Dr. Fosberg was finally given authority to hire ten or twelve botanists as explorers and with his knowledge he picked out individuals who were old enough to be exempt from any incipient draft of the military and young enough to be mobile, alive and active, spunky enough to go places and do something. I think fairly early he contacted me and asked if I would be willing to go. I checked with my wife and checked with the university and decided that I could go. I think it was in August or September, 1943, and I promptly filled out an application blank and sent it to Washington to the government agency which authorized the appointments. Then college started and I taught classes beginning in September, the university then being pretty much on the front line, reduced from 3,000 or 4,000 students down to 800 or 900, most of them girls, except a few men who were crippled or antimilitary or ineligible for one reason or another, so university work was very much reduced. We had five active teaching professors of botany and we suddenly found we were down to two, and work went on all right, but much reduced. I couldn't lead my students on field trips to the distant mountain ranges because we were limited to ten gallons a month per automobile. And regardless of the age or size of the car, you had only ten gallons. You couldn't go very far beyond the grocery store with those ten gallons.

A: You had mentioned previously, though, that you did round up a dentist who had a little more gasoline so you got a little leeway.

S: Yes, we got some, but we did almost all of our field work in the ridges behind Honolulu. Well, months went on and I heard nothing from Washington. Finally, in early December I sent a telegram to Washington saying that I had filled out this application that I was ready to serve as an explorer for quinine. I've heard nothing from you, yes or no. Within

a few weeks I must inform the university whether or not I will be ready to teach in the spring semester, so within two weeks either appoint me or forget about me. Apparently my application had been snowed in on somebody's desk and nothing had been done with it, and my telegram produced the results, so they appointed me.

I took off in January, went to San Francisco, found representatives of the Foreign Economic Administration there, spent time buying equipment because when you're an explorer you must have suitable footwear, stout shoes or stout canvas-type shoes, whichever you like and you must have stout trousers, you must have rainproof jackets and so on. And you must have some spares, because they wear out in the kind of work that you do. So I bought supplies and finally when.... I spent about a week there lodging with old friends of mine in Berkeley.

The time came when I was ready to go and I got travel orders and I flew down to Texas and down to Mexico. When they were figuring out the details of my flight, they booked me straight through to Bogota. I said, "I want to spend two days in Mexico City." "Oh, no. No, no, no. This is wartime. You're on national duty." I said, "Listen, I waited five months for you to move a paper from one desk to another, and two days won't make any difference." "Oh, no, no, no." I said, "Listen, when I get to Mexico City I'll be airsick and I'm going to spend two days there." "Oh, all right." (laughs) So I spent the two days there and looked around. I'd never been in Mexico City and then went on to Bogota.

A: Were you really airsick or did you just want those two days in Mexico? (laughter) I believe your seasickness, but I don't know about the airsickness.

S: In Bogota I found that the Cinchona Commission under the Foreign Economic Administration had quite an establishment. They had a headquarters' office. I guess there were fifteen or twenty people in the headquarters' office. They had a chemical laboratory, they had a botanical laboratory with drying apparatus so that we could send specimens in by railroad or by air and they would take care of the specimens. It was quite an effective, sizable organization.

And the work that we were assigned was exploration. Dr. Fosberg had discovered that Cinchona was there in the mountains, but there were three branches of the Andes called the Cordilleras Oriental, Cordilleras Central, and Cordilleras Occidental, each of which was from 6,000 to 12,000 feet high, and from north to south ran the length of the country Colombia, so there was a lot of country to explore. And Fosberg worked it out so that he would assign each explorer to a particular area which hadn't been looked over and they would go there. Each of us had a Dodge station

wagon which you could use to drive to the area and use getting around in it. And then when we got there, if it was the lower country, sometimes we had to move into the forest by dugout canoe.

I remember whenever I travelled on those I used to watch the banks and watch los caimanes, the alligators, some of them up to twelve and fifteen feet long, which are stacked up on the banks and plunge into the river and start for us. I always sat very still in those dugout canoes, because they were very tippy. They didn't have the stability of an American canvas canoe. You only had to move one shoulder and the canoe would start to tip. They had no outriggers. However, I had no adventures that way. The other method of travel into the country was by animal, horse or more commonly mule, riding mules. We would hire a guide if we could find one, and make up packs of food and supplies and go in and set up a camp somewhere and from that look around. Well, we found there were six species of Cinchona in the Andes in Colombia. Didn't I describe them a little?

A: We described the one that had a lower content.

S: And they occurred in the forest from 1,500 feet up to --oh, 9,000 feet.

A: And you had said that the one that produced the larger amount was a second stratum, and I was wondering when you were talking about doing all this work from the ground, would it not have been possible to detect these from the air by using helicopters?

S: Being second story trees, they were invisible from the air. And we didn't have helicopters available anyway. There were helicopters, but they weren't big and they weren't effective in those days. I told about taking samples from the bark and sending them to be analyzed.

A: You just described what they had uncovered, generally, before you went on the trip. You told how they had determined that there was one particular species...

S: Yes, but didn't I say something about how we harvested it and...

A: You described here the six species and the one species which was the big tree of the lowlands and the other five species grew in the middle and upper forests and you described the quinine percentage there, but you didn't tell anything about how they were harvested or so forth, so we can cover that.

S: When we found an area with sufficient number of Cinchona trees to make it commercially feasible, we would take a kilo

of bark each from ten different trees, pack those up and ship them to our chemical laboratory in Bogota. They would quickly analyze them, and the quinine is an alkaloid, but in the metabolism, and it's the by-product of the metabolism of the tree. I don't know all of the details but the tree also makes, progressively makes a series of other alkaloids, not only quinine, but quinidine and cinchonidine, and several others which are probably polymers of the same beginning chemical product.

Well, if we got a report that our shipment contained sufficient quinine percentage, contained four or five or six percent, then we were authorized to harvest it and what we did was--if the land was privately owned, we would go to the owner and explain the circumstances. We had the full cooperation and full backing of the Colombian government. The owner was always delighted to learn that something in this forest back of his place was of value. So if he had employees which he could assign to the task, we would show them how to fell the tree, skin the bark off the trunk, and then set up a drying apparatus. It could be a rack several feet above a fire, the bark spread out on the rack and left there over the fire until it was dry bark, whereupon it was sacked and hauled on mules to a town and from there by one means or another down to the river. The main river is the Rio Magdalena which runs from south to north out into the Caribbean and is a major route of travel and commerce. I think the steamers run up the Magdalena for 800 miles, or something like that, and they're a major source of transport. So we'd ship the bags of bark down to Barranquilla and there the agency would take them and accumulate enough to ship them on steamers to the States.

If the land on which the trees were growing was owned by the government, we would go to the nearest village and try to find some people who wanted a job and we'd go through the same process, train them, pay them for harvesting and drying the bark. And if we couldn't find anybody, we'd do it ourselves. By one means or another, we accumulated the bark. And every one of our explorers was effective in gathering the bark.

Eventually, at the end of about two years, the government said, "Whoa! No more." We had harvested and shipped to American companies 60,000 tons of dry bark averaging over five percent quinine. Well, five percent of 60,000 tons is a tidy little bit of medicine. Soon after that, a medicine which had been commandeered, seized from a German company which had a patent on it, seized as war spoils by our government and allowed the manufacture in our country of a new medicine for malaria, that is atabrin. Well, atabrin was cheaper and the military decided to use it primarily instead of quinine. It was administered, I don't remember, weekly, I guess, to all the military that were in

malaria countries. It had one side effect. It turned everybody yellow, in a temporary way. (laughs) That is, when they stopped taking it, eventually the yellow went away. But it was not effective on the severest strains of malaria, and it could not be used intravenously. It had to be used intestinally, by mouth. So quinine was still used and still is used. But atabrin is the quickest, usual ordinary medicine now and during the latter part of the war.

A: Well, is that synthetically produced?

S: Yes, atabrin is synthetic.

A: So you were on leave from the university. They just granted you leave to do this government project?

S: Actually, they were glad to grant leave to anybody who was ready to go to another job, because of financial reasons. They had so few students, they were getting little money from tuition. Well, it more or less evened off. It worked out. But I would say that three-quarters of the faculty went away on war duty.

The experiences in Colombia of the explorers varied, but most of Colombia above 1,000 feet altitude was covered with dense tropical forests from 150 to 200 feet high. There were all sorts of animals there that you wondered about. There were snakes. I quickly learned and adopted the process of keeping my hands close to my body. That is, if going along, I slipped on wet soil, my feet gave away, and I slipped and I was about to fall, instead of reaching out and grasping a tree, I fell. We lost one man, an explorer, who reached out and grabbed a tree with a snake on it, and the snake bit him. He didn't die, but he was incapacitated and sent home. There were the tarantulas, very big spiders, which would bite you. There were all kinds of things.

I started out with hard luck. Dr. Fosberg took me in the first area and showed me how work was going on, and then he assigned another area to me and I went down there alone. This was a side river, a tributary of the Rio Magdalena at fairly low altitude, about a thousand feet altitude. I didn't think I would, but I've forgotten the name of that river, that district. I could find it if I got my hands on a good map of Colombia and I had those maps once, but I turned them over to, I think, the museum here. But it makes no difference. It was a tributary about 400 miles up the Rio Magdalena, a tributary on the east side coming out of the Cordilleras Oriental. I went in there and there was no trail into the area which I could use. There was no water transportation. I had to go in on foot.

I found a man who said he would guide me. So he and I went along and he took his young daughter, a stripling girl.

I guess she was nine or ten years old, but a very lithe, active, nice little girl and she went along. Both the guide and I had a pack on our back, machetes at our side, and we hiked up into this hot, tropical, dense, sticky forest. And I soon got tired. Then after half an hour or so I suddenly realized that it wasn't just getting tired, I was getting sick. I went along a little farther and then I couldn't take another step. So I laid down my pack and spoke to the guide. I had a fever and, well, we made camp there and they fixed food and drink, but I couldn't take any. He soon saw that we couldn't go on with the trip, so he went back. Said he would return with mules and take us out.

It took him three days to cut a trail that he could lead a mule over. They had climbed over logs and so on. I lay on the ground there for a night, and the next day the little girl slung a hammock for me and with her help I crawled into the hammock and lay there for three days. I couldn't eat. I had a heavy fever and felt weak, and I could drink and she made tea or coffee, something, made a hot drink and she took care of me as best she could. At the end of the fourth day the man came in with just one mule which he led. He said, "Can you sit on a saddle?" "Well," I said, "I'll sure try." (laughs) He helped me mount. I was weak, but once I got there I forgot all the rules of good horseriding, but hung onto the pommel with both hands. And with some difficulty, it was hard work because the mule was bouncing up and down and jumping over logs, but I stayed on and in four or five hours they got me out. And put me on a bus. I got to a city and got on a railroad and rode to Bogota.

And then it was clear that I had "fiebre blanco." That is, white fever. Well, the people there knew all about white fever and the nearby village had lost fifty percent of its inhabitants to white fever the previous year. The medical people there and in other countries never heard of white fever. It's not in the medical books but it sure kills the people. (laughs) People talk about tropical medicine and there are more parts of medicine in the tropics that haven't been worked out than in the temperate regions and that's one of them.

Well, they gave me medicine that they used for paratyphoid, not pretending that it was paratyphoid, but that's what they used, and after a week or so I began to feel a little better, and Fosberg sent me down to a hotel and sort of a rest area down at low altitude in the Magdalena country. I hung around there and in a couple of weeks I began to get my strength back. I was strong enough to pick up and go on with the work which I did for another year or year and a half. But I learned that if I take care of myself, I can survive things that might be fatal. I've had other similar experiences which I'll mention as we go along. So I survived fiebre blanco.

Our returns to Bogota after making an exploration were usually at the the end of the month, end of one month or end of two months depending on what our expedition was. And the same thing applied to the other eight or nine explorers. When I got there, two of the men, Dr. Drew, who was a botanist at Michigan State, and Dr. Fassett, who was a botanist at Wisconsin, already had a house and they took me in as a member of the group. So we had this house which we went to. We had one servant, a woman who cooked and cared for us during the few days we stayed there, and then kept the house for the twenty-five or so days of the next month while we were off in the fields. It was a very pleasant experience to share the house with people who had similar experiences and had similar background and training. That was a very pleasant thing.

Bogota is not the pleasantest place to live in because it's at what?--I think 8,500 feet--cold, and windy and stormy and so on, but healthy. It's high enough up so there are no fevers. The lower valleys all have one or more different kinds of fevers, and that's why the Spanish developed it as a city, the capital city, because it's healthy. My explorations were almost all in the Cordilleras Oriental and quite a number of them were up at the northern end of that in the vicinity of Bucaramanga which is the capital of Santander del Norte and from Bucaramanga I went down to a small city, Santa Rosa del Chucari, a city of oh, 2,000 people, no Spaniards, almost all Colombian Indians or mestizos, half breeds, an interesting, pleasant little city. We went there and there was a good hotel. We stayed there.

We went off and did some work in the mountains, found some Cinchona and came back and waited for reports, and while we were at the hotel there, the second time, a revolution started. It so happened they were having a military exercise and review in the southern end of Colombia down near Pasto. They had practically all the Army, they had all the Air Force, they had the Marines, they had the president and all but one member of the cabinet there for this military review. When they lined up for the review, the revolutionary officers marched in and captured the president and the cabinet and sent out the news on the radio that there was a revolution. Well, similar outbreaks had been organized and took place, I think, at three other provincial capitals. In Bucaramanga, which was where I was near, they walked up to the Army headquarters, called out the commanding general and shot him down. They only killed three or four people. They captured, took command of the Army at that time and held it for about two days. In the two or three other capitals, apparently their attacking force was small and weak and they didn't succeed in seizing command.

The hotel owner who came and told us about it said, "You are free citizens. You can do as you wish, but I would advise you to stay in the hotel and not go out. There's a revolution and we don't know what's going to happen." I personally was very glad to stay in the hotel. (laughs) Being a foreigner in a country when a revolution is going on, it's not wise to maneuver around. So we stayed there, I guess, ten days. And I think, well, at least it's the only revolution that I know of that was won by the radio. The revolutionists in Pasto who captured the military, and captured the president and most of the cabinet were content with the one message they had sent out--there's a revolution and we've captured everything--this is it.

There was only one cabinet member left in Bogota. I don't remember his name or the post that he held. But he went to the radio and for about twelve hours a day broadcast to the country, "There has been a revolution. We are going to overcome it. We are loyal to the country. We ask everyone to maintain their position and carry on their duties and remain loyal to the country of Colombia." He talked with passion. His voice got higher and higher and higher. How a man could talk that way for twelve hours a day for a week I don't know. But he won the revolution; he put down the revolution single-handed by his voice on the radio. Because the revolutionists did nothing in rebuttal.

A: I was just going to say, didn't they attempt?

S: They didn't reply and after the second day when he said the revolution was over, it's all straightened out, it wasn't. So I sat through the revolution by sitting in the hotel and eating good food. (laughs)

A: And listening to the radio. So after that they just went back to the way things were? The president resumed, and so forth?

S: They did something to the revolutionary officers. I don't remember now what they did, probably shot them, but it was easily overcome by one man with a radio. (laughs)

A: So one person can accomplish something, right? So while you were in Colombia you didn't make any return trips home. You were just there for the duration of that trip. Were you able to talk to your family by phone? Did you just maintain letter contact? Were you able to call them at all?

S: I didn't do any phoning. We used airmail.

Well, the time came when orders from Washington were to close up the mission and send everybody home. I wasn't the first to leave. I left about halfway down the line and went to Jamaica by plane and from Jamaica to Miami, and had an

experience in Miami. I had written at the end of each expedition a report on where I'd been and what I'd found. "Well," they asked me, "don't you want copies of these reports to show what you've done?" I said, "Yes," so I had those. I have long been a photographer, since I was a child, and I had a camera and I took a lot of black and white pictures. I had prints of them, the films and the prints, and all of these things were in my suitcase.

When I got to Miami, I was looked upon as a suspicious individual. The customs officer took one look at me and didn't like me, and proceeded in great detail to go over everything in the bag. He read every one of these reports although they had a written statement by the chief of the mission that I was authorized to take these reports. He looked at every picture, hundreds of photographs, looking for proof that I was a spy. Well, I soon saw that there was no use paying any attention to the man so I went to the other side of the room and sat in a chair. I didn't have anything to read, but looked out a window. He kept me there for two hours. One of the other passengers, he was a Colombian I think, a businessman of some importance, they treated him the same way.

At the end of the two hours, we were freed and allowed to go. By that time, of course, all the buses had gone into Miami and there we were sitting in the airport. Well, he didn't speak any English so I talked to him and said if he liked we could go to Miami together and I would find him a hotel. So I got a taxi and we went to town. When I got there, I phoned to the military at the airport and explained who I was, and that I had orders to fly to Washington. But suddenly I had no more priority. On the way out I had number one priority. I must get there. On the way back they didn't care if I ever got there.

They told me to stay in the hotel near the telephone and wait until I was called, which I did for three days. I was unable to move around, to go to the city, to go to the botanical garden or anything. I sat in the hotel for three days in Miami. I got to Washington after that, and there was four inches of fresh snow on the ground, after two years in the hot tropics. (shivers)

A: Coming from Hawaii to Colombia and then, snow. (laughter)

S: This was in January or February, I don't remember, 1945. I reported to the Foreign Economic Administration, and I told them that I would be willing to spend the rest of the spring working in their laboratory identifying the plant specimens which I collected. We were authorized by our leader, Fosberg, in Colombia when we weren't working on Cinchona either where we were or when we were travelling as we often

did with our automobiles, crossing a mountain range, coming to a paramo, a mountain swamp, all of us collected specimens and shipped them to Bogota where they were dried and then sent on to Washington.

I would be willing to spend the time identifying them and getting them ready to put into the Smithsonian. Well, the chief of the mission, who knew nothing about botany, said, "Well, I authorize you to spend the time writing labels, but not to spend any time identifying specimens." The labels with the locality and so on.

Well, that was clerical work and not very interesting to me, so I evaded giving an answer and said, "I'll take some leave time. I want to go to Boston and check in at Harvard and see my mother. And I want to go to Cornell and see the great horticulturist Liberty Hyde Bailey, and then I'll come back to Washington." So I did.

When I got back to Washington, again I found I had no more priority. I had air transport, but no priority. So everybody else got on the plane and I sat and waited. They finally put me on a plane. I think it made eight or ten stops from Washington to San Francisco, every little city along the way that didn't have good through transport. It was a tiresome operation. I got to San Francisco and reported to the Foreign Economic Administration there. They said, "We're sorry we can't put you on a plane to Honolulu. You'll have to go on a boat, but without priority." Well, I grumbled a little bit about it. But I said, "Okay. I'm ready to go. I've applied for transport, but the way you're running things it could be two or three months before they get around to sending me. I could stay in Berkeley and play golf on the government payroll for months unless you send me home." They finally put me on a cattle boat with temporary bunks on the main deck. I think it took us nine days from San Francisco to Honolulu. Well, that was no great hardship. I finally got back and was able to return to my family and return to ...

END OF TAPE 5/SIDE 1

S: ...Resume my position where I was chairman of the botany department, but the botany department then was one other professor and myself and one girl assistant. This was wartime still.

A: It was the spring then of 1945 when you got back there? 1945, right?

S: We had an interesting volunteer helper. Professor Krukeberg of the University of Washington was serving as a lieutenant in the Navy and he was at Pearl Harbor waiting orders to go somewhere. And he waited and he waited. In the

meantime he came to the university and volunteered to help us teach, so we used him as a volunteer laboratory instructor for one or two semesters. (laughs) Very interesting contact.

As I mentioned before, the botany department at the university consisted of five professors, each of them a specialist in a different field, systematic botany, morphology, physiology, mycology and so on. Quite unlike the organization in some other countries. For instance, when I visited universities in Italy, I found that almost always there was a head professor who was a specialist in some one subject and the four or five other professors were in that same subject, picked by him to build up a staff very important in one field in botany. Well, that was okay for the one man and his research program, but it had little consideration for the students who when they come to start a science don't know all the different branches, don't know all the possibilities, and the fields of interest in those branches.

So I always tried to represent as many branches as I could in the botany department when I was acting as its chief. As I say, we were down to two professors. I had slowly built up from two to five before the war. Now I had to start it all over again. And it was not easy. Money was controlled by the Legislature. Money was appropriated for the university for a particular subject, and as far as the chairman of a department was concerned, you had to demonstrate that you had students in a certain branch who needed a professor. But you didn't have students in a branch of botany until that branch was opened to the students.

A: A catch-22.

S: So it was a struggle year after year to convince the Legislature that we needed a professor of mycology to teach about fungi, or we needed somebody in morphology to teach on the structure of plants and the importance of that in the theoretical and in the practical way. Well, over the years I finally built up to five professors again and we represented five different branches of the subject.

Slowly, our graduate work developed more and more, and eventually we were authorized to grant a doctor's degree. Up to that time it had been bachelor's and master's degrees. I don't remember, I think we granted three or four doctor's degrees, but usually when I had a student who worked under me as an undergraduate and worked for two more years and got a master's degree, I would advise him or her to go to a mainland, bigger university with different faculty, different facilities, and do the doctoral work in that new environment which would benefit him.

But. as I say, we began to grant doctor's degrees, mostly to people who came from the mainland and began and got a master's and a doctor's degree with us. I had several interesting, promising young scientists who went on and took advanced work with me, and that gives a satisfaction that a research professor enjoys when he can train a new, young, capable person in his particular line of work.

A: Yes, you feel that your endeavors are rewarded, and that it will carry on beyond that. That's a good feeling, one of the joys of teaching.

There was one story, in particular, that I told you I wanted to ask you about. I had read--we're kind of skipping ahead here--but I had read where on one trip you decided that you needed the good will of the natives when you were going off on an expedition on a Pandanus study, and you decided it would be a good idea to take a Polaroid camera. Do you remember? We mentioned that.

S: A good idea if we had what?

A: You decided that it would be a good idea to have a Polaroid camera to take a picture of the chiefs and present it to them as kind of a good will gesture to get their cooperation.

S: That has been done, but I don't think I ever did it. I think I'll have to cancel that.

A: Well, I had read that in a story about a trip to the Marshall Islands, I think. Long about 1955 was when that supposedly had occurred.

S: Well, then I've forgotten it.

A: Well, then you tell me an interesting story to take its place, okay? (laughter)

S: Well, had I previously given the background of my research on Pandanus?

A: No, we hadn't gotten to that at all. And from what I've read, you are the "last word" on Pandanus.

S: That is pretty much the last big story of my research at the university, and I'm thinking perhaps I'd better recall some previous work before that. Yes, I haven't said anything about my work with students, my expeditions to other islands, have I? Well, the professor who trained me was very much interested and very effective in using field trips to gather specimens and to educate and inspire his students. I had the same attitude. I liked to go exploring. I liked to go

places and I liked to use that as a method of teaching and inspiring my students.

Beginning with 1932 or 1931, I began using the entire Christmas vacation leading a field trip to one of the other principal islands of the Hawaiian group. I think our first one was to Hawaii, and the second to Kauai and so on. The trip usually lasted from ten to fourteen days depending on the length of the vacation, and the days of the week which sometimes lengthened the free days. We would go and take collecting equipment with us. I would always take my automobile and, if one of the students or one of the professors who went with me or another person had a car, we'd take that along. Usually we had two or three automobiles. We were mobile and independent having those cars for transport. And...(peruses notebook)...why don't I take that first trip and show....

A: Now, obviously, you went by boat to the other islands. And you ferried the cars over because there wasn't a Budget-Rent-A-Car at the airport in those days, right?

S: Well, there were cars. But the renting of a car was far beyond our budget. We managed to use private cars. (continues to peruse notebook) No, the first trip was to Kauai in 1930, from December 26 to January 4. We would make arrangements and go to a place and establish a temporary camp. For instance, on Kauai our first base was at Kokee and there we were allowed to use a cabin which the Hawaiian Forestry Department had there as our base. So we had a house, and cooking equipment, and an oil stove to use there. We spent (refers to notebook) from the twenty-sixth to the twenty-ninth at Kokee, exploring the wet forest near Kokee, going up into the lower portion of the Alakai Swamp, that open, above-treeline, wet, saturated bog, similar to the sphagnum bogs of the mainland, and with very interesting flora, and then various ridges and valleys around. I collected actively and my students helped me on that expedition.

Then we moved to the Napali coast and spent from December 31 through January 4 at a Boy Scout camp at Hanakapiai. And from there went up the valleys, went along on the first part--no, the camp was at Haena--that's a correction, not Hanakapiai, and we explored the Napali coast as far as Hanakapiai, went up the valley, but collecting and moving slowly as one has to when he's gathering specimens, we only got about a third the length of the Napali coast trail. But we got an acquaintance with and an interest in that wild, unsettled, rugged coast with steep slopes, not really cliffs, but slopes of 45 to 60 degree angles, dropping from 6,000 or 7,000 feet down into the ocean. Glorious country.

A: Some of the most beautiful country in these islands, I think.

S: Wonderful. So we had a fine time. That is the way I handled these trips. The next trip we took was to Hawaii. And I think the next one was to Maui, and the next one to Molokai. The students were not eager about Molokai. All the other islands they were eager to go to, but few students went with me to Molokai. On one of the trips I had four other professors with me on a trip to Molokai. No students.

A: Was it because the lepers were there?

S: Well, the lepers were there, but they were segregated.

A: But why didn't they...?

S: Molokai's small, it's thought to be dry. The students had no interest in Molokai.

A: That's too bad. Because it's just as beautiful.

S: They missed a great deal. I always made arrangements on our Molokai trips to go into Wailau. We would botanize the west end a little bit, botanize the southern slope and when the time came, anywhere from five to eight of us would backpack food and collecting equipment, starting at Mapulehu, going up the ridge over the 3,000 foot pass, down the steep head wall of the Wailau, and I was successful in getting permission to stay at the Federal Water Board hut near the gauging station. They had a very nice cabin there. We enjoyed staying there very much. We would go to the mouth of the valley, the beach, the north end, and Wailau is one of the most spectacular valleys that we have in the islands. Have you been in there? (A nods affirmatively) How'd you get in there?

A: Well, we wanted to do the muleride down to Kalaupapa. So we stayed the weekend. We just went back as far as we could drive and hiked a little bit. We didn't go all the way.

S: You went as far as Waikolu. Well, we had a fine trip there, which reminds me to mention another trip that we had on the Fourth of July. This was partly with students, but I hired a sampan, a thirty-foot boat, and on the Fourth of July, I think we had three or four days, we started out from Honolulu and ran into gusty weather. The crew of the boat was three men and they were seaworthy. Everybody else on the boat, and there were about sixteen of us, got seasick.

A: You'll just never learn, will you? (laughter)

S: We had a hard trip. But we got to the mouth of Wailau Bay, and as you enter the bay, there's a little headland at the left-hand corner of the bay, which if the weather is moderate, makes a little lee and you can pull over there in a landing boat, rowboat, you can get in that lee and go ashore and land on a sandy beach without disaster. So we did. We got everybody ashore and spent two nights there and embarked again, I think at three or four p.m. on the third day, and then came back that night to Honolulu. We made interesting and large collections.

And I with Bill Storey [Dr. William Storey] climbed the secondary ridge to the left as you enter the Wailau and got up to 2,500 feet and got interesting collections, and when we came down we had an excellent view of the cliff coast of Molokai which stretches from Wailau to Pelekunu to Waikolu with--is it 2,000 or 3,000--I think it's 2,000 foot cliffs--and when we came by, it had rained and I think there were eight or nine streams making waterfalls off those 2,000 foot cliffs down into the ocean. Marvelous!

One of the men on my trip was R. J. Baker, the photographer, and he took some very nice pictures. By the way, I might mention him. He's a well-known person in Hawaii. His photo collection is now turned over to the Bishop Museum and they have the R. J. Baker room. He took a great many pictures in the early 1900s here of native people, native places.

A: I understand that he used to go around each New Year's Day and photograph things to see how they had changed from year to year. I've seen some of his work when they have special shows at the Academy of Arts.

S: Well, I had close contact with him because he was an outdoor person, a mountaineer, as well as a professional photographer. He had some contact with me, and apparently liked me, and came and said that he wanted to work for a bachelor's degree in botany. His children had grown up at that time, he was middle-aged. "Well," I said, "you'll have to go through the program and take the required courses." "Okay," he said, "I'll do it." So he signed up in elementary botany and we ran him in the laboratory and put a microscope in front of him, and the assistant told him to study this section of the root and draw tissues and so on.

He came to me in a week or so and said, "I'm ready to do the lab work, but can't I take photographs instead of making drawings?" "Well," I said, "the reason we ask people to make drawings is we want them to see the structures, we want them to pay attention to them and get some understanding of the relation of the structures that you can see through a

microscope. You can equally well or better represent them by photographs if you're skillful enough, but that doesn't mean you've studied them. It's okay. with me if you want to photograph them, but you want to learn what's there."

Oh, he turned in a magnificent notebook, magnificent, which was his. He took it away. Well, he went on and took the courses. He took all the required courses in morphology, in physiology and cytology and mycology and finished the courses and got a bachelor's degree. So after he was middle-aged, raised his family--I don't remember whether he was divorced then, he eventually divorced or actually was divorced--I don't remember who did it, but that probably was when he did the botany, (chuckles) so that's a side of Baker's career that most people don't know. [Ray Jerome Baker received a Bachelor of Science degree from the University of Hawaii in June 1934.]

A: Oh, that's so interesting.

S: But he still did field work. And one time he took a trip to Haleakala on Maui. That was before they built the summit road. You could follow the road up as far as Olinda, above Makawao, no further and there you could do it on foot or hire a mule or a horse and ride up. Well, this trip he had several people with him, and one of them was a botany student, Donald Anderson, who finally became a staff member of the Lyon Arboretum. He's still around. They went up, climbed the mountain, went down into the crater, skirmished around, eventually started down. Well, Don Anderson was riding a mule and apparently he hadn't done a great deal of horse or mule riding.

From me he had learned that an effective method of collecting plants was to put them into moist cotton cloth. forming the inner layer of a backpack, which when you're on foot you carry on your back. Well, he still carried it on his back when he was riding, instead of hanging it on the pommel of his saddle. That made him top heavy. Well, they started down, he saw a plant that he wanted, he got off, gathered the plant, was hanging onto the reins to hold the mule. The other men and animals went on. His mule was anxious to keep up with the party. Donald got his plant, put his pack on his back, put a foot in the stirrup and started to swing up. He hadn't turned the mule around. It was headed downhill seeing the departing train of animals. Don got on the back of the animal, but never succeeded in getting his other foot into the other stirrup.

The animal broke into a run, Don bounced awhile and then was thrown, thrown in the wrong place. He hit on his head on a ledge of rock, on his forehead, had a deep cut and it stunned him and he laid there while the mule ran on and joined the other people. Well, they saw that the mule

without Don wasn't normal, so they went back and found Don and brought him down, unconscious, to a hospital and it took him quite a while to recover, which he did completely.

A: He was fortunate that he did.

S: Things can happen in field work and you have to know how to swim, you have to know how to ride an animal, you have to know all kinds of things, how to climb a tree, all kinds of things.

A: Now they offer survival courses.

S: And the better you do it, the safer you are. (laughs)

A: Did Betty or any of the children go on any of these trips with you?

S: When the children were young, Betty stayed back home with the babies. But the time came when they were old enough that we could have somebody come in and take care of the kids for a couple of weeks, and Betty went along with me on several of the trips. She and the oldest boy were with me on this early trip by boat to Molokai. While we're mentioning Wailau, I might as well tell something about my expedition to Olokui, the high peak between Wailau and Pelekunu.

It's shown on the map with a triangle summit, a sloping triangle with a high peak at the narrow point, and the flat end of the triangle, the top of the seaward cliff and with six or more streams running down there cutting valleys but represented on the map as a bog, as an open bog, without forests. Well, no botanist had ever been on that mountain area. After World War II, I went to the Air Force and tried to persuade them to facilitate a scientific expedition there. What I wanted was a helicopter to take and land us on some part of this 3,000 to 4,000 foot summit, and to come back every day and take out our specimens and take out a news release which their publicity officer could use and get the credit for backing this expedition. He'd get the credit for the expedition and we'd get the specimens. Well, he said, he didn't know. So the major got an airplane and flew me over there and we flew back and forth, we flew through the pass at Mapulehu, we circled around this mountain, and looked it over.

I could see that instead of being bog it was forested all over. So here was a square mile or so incorrectly mapped on the federal U.S.G.S. topographic quadrangle. And I could see that it wasn't flat. I could see that these valleys cut by the streams were 100 to 200 feet deep. And I saw bananas. Well, if there were bananas there, some man had put them there. In other words, the Hawaiians had placed them there, because bananas were introduced and cultivated--they're not

part of the native flora. So I figured if there were bananas there, the Hawaiians had climbed up there. No haole botanist had gotten there, but it could be done. And there was a village in each of the adjacent valleys, there was a village in Pelekunu, there was a village in Wailau, the whole lower part of Wailau had been a big taro plantation and they had exported taro to Honolulu until the Wilder Steamship Co. stopped running about 1900. And then the people moved out. They couldn't earn their living by exporting taro.

Well, the major assured me that they didn't have a helicopter which could hover at 3,000 feet, so they couldn't land us. They could fly by there, but they couldn't hover at 3,000 feet, so they couldn't land us on the upper triangular summit. So we postponed it. Nowadays, they have helicopters that can hover at 8,000 feet or more, but they didn't then.

Well, after some years there was a visiting professor here, an ornithologist, Dr. Frank Richardson, who came from the University of Nevada, and had been here. He was a field man, he liked to get out and go places and realizing that that was a virgin area, not despoiled in any way, there might be some rare or even new birds there. So he planned a trip, and he came to me and I agreed to go with him. He took one ornithologist who's now in the bird section of the Land and Natural Resources Department of the state of Hawaii, and I took one assistant, Robert Wilbur, W-I-L-B-U-R.

My younger son, Robert St. John, begged to go along because he loved mountain work. He was not a botanist, but he would help in the camp. He was one extra. We were going to use my tent. I had a balloon silk A-tent which comfortably slept four. It only weighed three and a half pounds so it was a nice tent to carry along. But five people? Well, we did, and when we slept we slept on our sides and we had to whistle for all to turn over at the same time. (laughs)

A: But he wanted to go so badly that you couldn't turn him down.

S: We were crowded. He wanted to go. We went there. We got there by plane to the airport at Molokai. We spent a night at a hotel at Kaunakakai. We got a taxi at four or five o'clock in the morning and rode to the top of the settlement trail which was then open. There was no company with a copyright on who could go down the trail. They wouldn't even let you get up there and look down the trail as I discovered a few years ago, and I'm glad to say they've gone bankrupt (laughs) and it's now open. We started down the trail in the dark, each of us with a backpack of eighty pounds or so, and it was hard going, stumbling down the rocky footing of the trail. The trail goes down about 1,200 feet

and then follows along the flat until it gets to the village of Kalaupapa.

There we had arrangements and hired a small sampan and in that we went around the Kalaupapa Peninsula and across the approach to Wailau and into Wailau Bay. And when we got there, the boatman said it was too rough, that he didn't want to get close in. Well, we persuaded him to go closer and my son Robert jumped overboard and swam to the foot of the cliff at this left-hand headland and climbed on the rocks, waved and said it was just fine, "Come on." So then two of the others swam, one other and the boatman and I went in the skiff that we had towed and we got close enough to the foot of the cliff, the rocks, so that we could throw our baggage. One of the men, usually Robert or Richardson, would run down and stand up to their knees in the water and be ready to catch the bundle as we threw it.

We got all the bundles ashore and then we had to jump in and swim the last short distance and climb on the rocks and get up. There we were and, if it had been quiet weather, we could have just walked. But it wasn't quiet weather and the waves were breaking, and we had to wait till the wave had hit, and was beginning to recede, and then run a ways, to get to the space between it and the next wave, and then run, and then wait. Well, we successfully got there.

We spent the night in a foresters' cabin and the next morning the weather had changed. This was in early February and the weather was kona. The wind had turned to the south, a quiet kona, and we had three days of quiet kona. The clouds had moved to the other side of the island. It was sunny and warm and dry and open on our side of the island and we started up the base of the cliff on the right-hand side of the bay, the ridge between Wailau and Pelekunu. It was about a 45 degree angle slope and we fought our way up that. There was no trail, but actually there was no serious impediment to access. It was just hard work. We spent all day chopping away, breasting our way through the brush, getting up to get to the forest and to get to the lower edge of the triangular mountain summit. That took most of the day.

I found a place on the ridge that was big enough for our tent. I gave Wilbur a two and a half foot plastic bag and said, "Go down a hundred feet into the valley and bring us some water for camp in the plastic bag." He did. So we had our food which we had brought, there was wood and we made a fire and established camp there. And for the next two and a half days we botanized in that summit area of the ridge, Olokui. The mountain is Olokui, O-L-O-K-U-I. Later I'll supply the altitude of it.

I wanted to get to the top, but I thought the most important thing to do was collect the plants of that summit area, and I didn't get to the top. I got about two-thirds or three-quarters of the way up and I don't know whether there was any change or not from there to the summit, but I didn't get to the actual top. I could see it. There was a pole or a monument there, so some geographer or geologist had gotten up and measured the place.

A: You just ran out of time. You simply didn't have the time.

S: Yes, we just ran out of time. We made a big collection. There were some interesting things. For instance, there was a species of Gunnera, G-U-N-N-E-R-A, which the Hawaiians call apeape. That's the thing that looks like a big geranium. It has leaves five feet in diameter and a trunk six inches in diameter. It's an herb. It's one of the biggest herbs in the world, very fantastic thing with a flower spike three to four feet long, and it turned out to be a new species which I described known only from that part of Molokai. There were, I think, only three or four weeds undoubtedly windblown, but the area was virgin, untouched. There had been no settlement, no trail cutting, no lumbering. It was untouched except there were a few bananas in some of those valleys. The ornithologist did not find any new birds or any ones that were supposed to be extinct. But that was an interesting expedition.

Well, we came down on the fourth, after three days, fourth day and got down in the early afternoon and then we figured, well, that was Sunday and we had to get back so we hiked up the three or four miles to the head of the valley and the weather changed. The trade winds came, the clouds piled over the mountains and the rains descended, and the rains can be very heavy on the mountain ridges of the windward slope of the islands.

Well, we followed up the switchback trail, up the steep head of the valley, and I remember once there was an interval and the clouds opened, and I could see the head wall of the valley and there were streaks down the side walls, the beginnings of valleys, and I counted twenty-seven streams with waterfalls coming down the head of the valley. We got to the summit and came down, and got partially dried out on the way down, were able to hitch a ride from there to the airport, and came back, very weather-beaten, but very triumphant.

END OF TAPE 5/SIDE 2

January 10, 1986

S: To pay some attention to the work that I did at the University of Hawaii. When I came here, the president told me that my duties would be to teach systematic botany, which is my specialty, the classification of higher plants, and one other course. Well, I did teach other courses, and part of the time I taught the elementary course. I was here what? twenty-nine years as a professor, and about a third of that time I taught the elementary course which averaged anywhere from one hundred students to a larger number. And at the time of the GI's after World War II we had as many as 240 or 250 students in elementary botany. And in connection with that, I want to say a word in praise of the system. That is, the administrators of the GI Bill allowed any young man, a veteran, who wanted to go to college or some other kind of technical school, if they showed the ambition to go and as far as they could tell in talking to them they had ability, the government officer gave them a grant and allowed them to go for more education.

I don't know how many of them I had, but for a period of four or five years I must have had 200 or more GI's taking elementary botany, and they were three to five years older than the freshman students who hadn't been to the war, and they were more serious, more mature, and most of them were trying to figure, "Well, what am I going to do in the world? What kind of a job can I work at?" So they were more serious; and of that large number of students I had, just one didn't make it. One student, he tried, and he was nice boy, he tried, but he failed so dismally that there was no question about it. I hated to fail a veteran, but when I discovered that he'd failed three other courses, too, I decided my judgment was fairly good. But I want to repeat that it was a pleasure working with those GI's because of their ambition, because of their serious attention to the work, and their desire to learn everything they could out of it.

A: I know what you mean, because I was in college during that time span and I'll tell you after we quit recording some of my stories. (laughter) But they were serious, they were glad to be back here and to get on with their lives, they were grateful to be back here and have the opportunity, so they did buckle down.

S: They did buckle down.

A: Did you teach the elementary course--you may be leading into this--but I remember your saying that when you took an elementary course that although you had a marvelous teacher it was a boring elementary course. Now did you feel it was important to get them at the beginning and to make it a little more interesting than it had been presented to you.

S: Well, I hope it was more interesting but that's not something I can prove. (laughter) I feel sure that it was a better course than the one I had. Besides those subjects I also taught plant ecology; the first time it had been taught in the islands. I taught a popular course on plant geography; I taught a course on the history of biological and physical science from ancient to modern times and I taught a course on botanical nomenclature. Nomenclature is the science of naming and in systematic botany, after we decided a thing deserved a certain place in the system, it has to have a name. We have international laws adopted by international congress. The first one was held in 1905 and they adopted a set of laws based upon practices of the past and going all the way back to the ideas of Carolus Linnaeus, the great Swedish botanist, who published in the 1730s, 1750s. And a succeeding botanical congress has been held every five years, except during wartime, and they have somewhat modified, slightly improved the rules, but actually the rules today are ninety-five percent exactly as they were in 1905 and almost the same as with Linnaeus'. So we have this very precise set of rules, and a person doing systematic botany, like a student who is studying a plant group, like a genus, and he studies them and he discovers that he has a plant that doesn't match anything that's known--it's certainly different--he decides it's a new kind of plant, a new species. What shall we name it?

Well, these rules deal with priorities, that is, the first name for a group has to be accepted, if it is validly published, published under certain circumstances, if it has a diagnosis, that is, a technical description which now has to be in Latin. Well, there are seventy-three laws and just about as many recommendations. Recommendations are good advice; you can follow them or not, as you please. But the laws you must follow; the laws are retroactive. So there's a very precise set of laws, international laws, to determine what is the correct name for a plant. And I started by teaching a graduate seminar on that and it was a great success, and it went on for years, about the last ten years that I was teaching.

And I handled the course, teaching it by the case method, very much the same as is used in modern law schools. That is, besides getting the students familiar with laws in general, each student would be assigned a case and he would have to study that. In my work he would have to go and look up the name which applied to a particular plant and see if it was a valid name, that is, if it had the characteristics to make it a valid publication, see if it was a synonym or a homonym. Case No. 69 (refers to his book Nomenclature of Plants) *Achras zapota*, that's the Zappotilla, that was published by Linnaeus in 1753. You'd have to go and find that book in one of the libraries, look at it, and read it in

Latin, because the book is in Latin. A variety published by Jaques and that probably was in Latin. Sapota Achros, that was published by Phillip Miller in London, that was published in English, and so on. Here are five references and each of those names had to be studied, and the student had to decide the status of those names, all applying to one plant. Then a few weeks later he'd be called on in the seminar. Each of the other students would have a copy of this prospectus, and he'd stand up and discuss each one of the names. I treated the students as a jury--they could interrupt at any time, make the speaker defend his point of view, make him quote the laws which applied to that particular name, and so on. The sessions were always quite lively. The students had a lot of ideas and sometimes it took more than an hour to present and defend a certain case so that not only the student who studied that but all the students in the class had the information on that name and how it stood in relation to the international laws. Well, it was enough of a success so that I finally put this together and published it as a book called Nomenclature of Plants published in 1958.

Now this is a book of examples or cases which can be used in training graduate students to understand nomenclature. This is the first book in any language covering that subject. In most universities the only contact a student has with the application of the laws is hearing two professors argue in the hallway about some particular case. No university that I know of had an effective way of teaching the application of the laws of nomenclature.

A: But with this approach you get them right into the arena.

S: Yes, and the cases are so selected that they cover all the important laws, that is, all of the important laws are brought to bear on half a dozen cases. The introduction tells how it can be done, how I do it.

A: Do you know if in the past twenty years or so anyone else has adopted this method?

S: Of teaching? Oh yes, quite a number of universities. Curiously enough, after two or three years the publisher wrote to me and said, "We want you to publish a supplement, a little leaflet, giving the answers to the cases." I said, "Nothing doing." When you have a textbook of arithmetic or a mathematical textbook with cases to be discussed by students, you don't give them the answers.

A: In the fourth grade you might, but not at the graduate level.

S: But they said, "We will hand this only to professors. It will help the professors." "Well," I said, "if the

professors have it, within a week some of the graduate students will have it also." (laughs) So I refused to do it. Well, it's now out of print and there's no great demand for another edition. I could prepare another edition with a lot more cases, but there are plenty of cases there for the training of any particular student group.

The history of science was a rather ambitious course; to cover the development of science from ancient Greco-Roman civilization down to, almost to the present. I had long been interested in the history of botany and knew something about it, and then I happened on this textbook by Harvey Gibson, The History of Science, and it was an excellent text. So with the use of that and my own background of knowledge, particularly of botany and zoology, I launched the course. I didn't make it high level; I didn't make it technical; I made it on a lower level, more general, so that a person with some scientific knowledge and some intelligence could take it and appreciate it. And it was a real success. It died on my departure; nobody else has had the courage to teach a course like that. But I had interesting later comments from students who took it. One man at the University of Oregon took that course and he's now teaching a similar course in Oregon. So it had some effect.

I think I'll mention my work in connection with Hawaiian medicine. I don't have the exact date at hand (I could find it) but I think about 1919 or 1920, somewhere in there, the Hawaiian legislature passed a resolution instructing the Board of Health, the Hawaiian Board of Health, to prepare a textbook on Hawaiian herb medicine. The Hawaiians, like all of the Polynesian people, had a *Materia Medica* of some hundreds of medicines which they used in the treatment of diseases or wounds. A few of them are chemicals like salt and clay and such things. Quite a number were of animal origin like echinoderms and various other products from animals in the sea, but a large percentage, perhaps ninety percent, were plant products which were easily available. The Hawaiians had an excellent knowledge of the possibilities of use either for food or medicine or for fiber of Hawaiian plants. When the American missionaries came in 1820, I believe it was, one of their members was a doctor, Dr. Judd, and he looked with depreciation upon any medicine of a native tribe of people. And I'm not sure if it was during his term or not, but soon the king was persuaded to forbid the use of Hawaiian medicine.

That didn't stop it. It went on largely as home medicine. Just as we in our civilization use a lot of simple cures for various obvious diseases, so did the Hawaiians and they still do. But this edict, forbidding the practice, was made about 100 years ago, and there have been two more generations of Hawaiians since then and each generation has known less of the old herb medicines. The old

system had training schools, they had essentially a medical school. A promising young boy would be selected and entered in this school and this school (it was a boarding school, they lived there constantly) lasted for twelve years, so they had a lot of time to learn the knowledge that the teachers had of their kind of medicine. Well, with the knowledge of some of it, I suppose it was a Hawaiian legislator who proposed it, this resolution was passed and communicated to the president of the Board of Health and two years later when the Legislature met again they called in the man from the Board of Health and said, "Where's your report?"

He was a western trained M.D. "Well," he said, "I've been very busy." (demonstrates displeasure of Legislature by striking desk) "This is an act of the Legislature. You were instructed to do this." "Well, I've... there were some questions." "You were instructed to do it. Get busy." So in the next two years, he realized he had to do something. He didn't know anything about...he was a haole...he didn't know anything about Hawaiian medicine, had only disrespect for it. But he decided the thing to do was to find a kahuna, a priest, a learned priest, a kahuna lapaau, that is, a priest specializing in medicine, on each of the five big islands. So he set out to find on Kauai, Oahu...and on four of the islands he couldn't find anybody who admitted he was a kahuna. On Maui he did. And there on Maui he found a Hawaiian named Kaaiakamanu and he instructed him to prepare a set of samples, a collection of the medicines that he knew, Hawaiian medicines, and to write down how they were used and what they were good for. He was financed and he set to work to collect these. He'd go out into the lowlands or up in the forests in the highlands and he'd collect a bundle of branches, pieces of a particular plant, bring it back, and he had a big wooden packing case, about four feet by five, and he'd tie a string around the bundle with a label on it and throw it in the packing case and leave it there.

He accumulated a large number of these over a year, and at the end of the year he brought the case to Honolulu and submitted it to the Board of Health. They didn't know what these things were and what to do about them. So they called in the botany professor at the university (it was a college then, College of Hawaii) Professor Joseph F. Rock who was an excellent man. He was a systematic botanist among other things and he looked at this pile of rotten vegetation, all the leaves dropped off, the stems moldy and so on in the packing case and he blew his top. He recommended that they be thrown away. (laughs) Said they were absolutely useless. Well, they were not preserved in a usable form. So they said, "Well, you teach this man how to make specimens." So he did. He told him how to collect things. What they should show, the stems, the leaves, the flowers, root, or both if possible. How to lay them out between papers, the papers with blotters on either side to absorb the moisture, how to change

the blotters when they got moist and so on. Showed him how to dry specimens.

So the man worked a second year and made a set of collections and brought them over. By that time Professor Rock had left the college. He left the college in a fit of rage because the Legislature under the suggestion of Dr. Gregory, director of the Bishop Museum, had passed a law designating the Bishop Museum as the official depository of the collections made at the state institutions. They had done this without saying anything to Professor Rock who had built up a fine herbarium. And it was to be taken away from him and moved over five or six miles to the Bishop Museum. In a fit of rage he resigned and left and two weeks later on the next boat he went to the mainland.

Well, he was replaced by Dr. H. F. Bergman B-E-R-G-M-A-N who was a plant physiologist. Well, a plant physiologist knows something about the metabolism that goes on inside of a plant, how photosynthesis takes place, how a plant can take water and carbohydrates and use the energy of sunlight as power and produce crystalline, storable starch grains, carbohydrates. But a plant physiologist never knows very much about plant classification. He may or may not realize that the plants of Maui are mostly different from the plants of Oahu. He had lived for a couple of years on Oahu and he proceeded to try to identify these specimens. He identified them as natives of Oahu, which they weren't. Whether or not he identified them correctly we can't now tell because the specimens have all disappeared. They were not saved by the Department of Health; they were not given to the college. The text that was written by Mr. Kaaiakamanu was written in Hawaiian and they employed the pastor of the Kawaiahao Church to translate it into English, which he did, and then it was printed by the Territory and adopted as the official text for Hawaiian herb medicine.

They then arranged to have a committee of examiners be ready to examine and certify or refuse to certify candidates for the degree of doctor of herbal medicine. Oh, for ten or twelve years I was a member of that board and the medical man was Dr. Harry Arnold, a general practitioner at the Straub Clinic, and there was a Hawaiian, whose name I've forgotten, from the Board of Health who was not a technical person. I suppose we had twenty-five or so candidates over the ten or twelve years. The requirement of the law was that the candidate must know human anatomy and human physiology and they must have a knowledge of the Hawaiian herbs and medicines, their identity with their Latin names, their Hawaiian names and their properties, how they were used, what dosages were used. I don't recall any other requirements of the law. Our examinations were given separately; I never saw what Dr. Arnold required of them or what the Hawaiian required. I examined them for their knowledge of Hawaiian

herbs, the identity, their scientific and common names, their reputed use as medicines. I'm quite sure that Dr. Arnold flunked all of them because none of them would have any very detailed knowledge of human anatomy, although in the old Hawaiian training school they taught the students the position of the various organs in the body. They were taught to know them so well that blindfolded they could kneel down beside a body and point to the location of each of the organs. So they had some very precise training in the early days.

None of the applicants could identify half of the samples that I submitted. I brought ten or twelve well-known Hawaiian herbs with strong chemical properties and reputed use by the Hawaiians. Some of them couldn't even identify the awa plant which even today is known to have medical properties by anybody who knows plants. So I failed them all, and I'm sure Dr. Arnold did and I don't know what the Hawaiian did. So we didn't accept any of the candidates. Most of them were practicing privately without a license up to that time and whether they're still doing it I can't say. But no one today is practicing Hawaiian herb medicine legally, although there is this mechanism for their being examined and receiving a certificate which will authorize them to practice on the same basis as an M. D. from a modern medical school.

A: Oh, that's still on the books today?

S: Still on the books.

A: And there's still a panel doing this ?

S: I suppose so. Or if there isn't a panel now, they'll appoint one when an applicant comes.

A: Hasn't somebody done a fairly recent book on the medicinal herbs?

S: It's a second edition of Kaalakiama's. Somebody privately, without authorization (any copyright has expired) put a few pictures in the book and modified the title and it's an attractive publication and it makes known--I haven't checked it page by page--but I think it copies all of the material that was in that earlier official book. For a long time the earlier was not available, out of print, and even the Board of Health couldn't get a copy, but as you suggest, there is now a recent, unofficial, essentially identical edition of it.

Native herb medicine has learned by practical experiment the value of certain plants, particularly drugs, plants containing drugs like quinine, and digitalis. There are twenty or thirty medicines today which are still the best

known treatment for certain diseases. And there are hundreds of others in the backgrounds of native peoples of all parts of the world which have been used for particular medical use. And in areas where modern medical practice is not very well represented...well, in certain parts of French Polynesia, the only trained medical doctors are Frenchmen in Tahiti and very often those are doctors from France, particularly ones who have worn out their welcome in France (who have become drunks and were sent to the colonies just to get rid of them) and they were less effective even as a good representative of western medicine and they didn't go to the outer islands. In the outer islands there, some hundreds of miles from Tahiti, if a person got sick, naturally they went to the local medical practitioner and for many local diseases they were very good indeed.

So medical knowledge developed by various people in the world, when well represented and well practiced was an excellent body of medical knowledge. It's a pity that the Hawaiian, and the medicine of many other similar native tribes of other parts of the world, instead of being forbidden immediately by the modern doctors, wasn't studied and analyzed for its source. Because each one of those, undoubtedly contains medical knowledge which was worth testing and adopting as was or developing with that as a base by developing chemical compounds. But that as a rule has not been done, and the attempt to do it with the Hawaiians was a hundred years too late.

A: A trivial example of that is, what do we do here in Hawaii, even haoles, when we burn our finger or something? we run on the lanai and break off a piece of the aloe plant immediately.

S: Yes, but that isn't a Hawaiian plant.

A: It isn't? I didn't realize that.

S: It's from Africa.

A: (laughs) Well, we're not going to tell anybody that. That's between us.

S: I'll turn to quite another topic. It was in the late 1930s, I think I was president at that time of the Hawaii Botanical Society and there was a meeting in one of the university buildings and in walks Paul Bachman. I don't remember whether he was professor then or a dean, but anyway he was the principal professor of history at the university. And he wanted to know if any of us knew anything about the whereabouts of Professor Marder, M-A-R-D-E-R. He was another professor of history at the university. I didn't and we polled the attendants at the lecture and none of them did. So Bachman departed.

The next day he phoned me (I don't remember what time of day) and this other professor had vanished. Bachman had hunted and hunted and gotten information that Marder had gone hiking with a girlfriend and that at three o'clock in the afternoon he had started at Woodlawn and climbed the Manoa-Palolo ridge and started for a hike in the mountains. At this time it was two or two and a half days since he'd been out there and no sign of him or the girl who was a nurse. He asked me if I'd organize a party and go out and hunt for them. So I did. I got six or eight hikers and we started out the next morning up the ridge there. And we looked and we shouted and spent the day and found no trace of them.

I came back and reported to Bachman, and he was unhappy but said, "Go ahead." Well, the next day I had two teams in the mountains. I sent one up through Tantalus, up that way, and again we hunted all day long. The third day I had three teams in the mountains, I had two airplanes, and I had a hundred National Guardsmen, and that day one of the parties which entered from the Tantalus end went up towards Konahuanui and turned right towards the head of Manoa Valley and found Marder and his girlfriend, whose name I'm not concealing--I've forgotten her name--it's a long time ago. They were within fifty yards of a well-marked, beaten trail. They were lost in the brush.

They'd been there for what? three and a half, four days on the inward side of the Koolau range within full sight of Manoa Valley, the university, Waikiki, the city, the lights at night. On the first day we learned that instead of going back the way he came when it got late (it was already late when they started) he decided well, we'll push on and go down one of the secondary ridges. The secondary ridges in the heads of the valleys like Manoa mostly end in precipices and can be climbed or descended only by a skilled person with equipment. They soon found they couldn't get down safely from where they were, so they climbed back up and lay down and spent the night.

The next day they moved over and tried another ridge, and turned down into the valley and tried to follow a stream. Nobody who knows Hawaiian mountains follows a stream, the stream always ends in waterfalls and precipices and Marder got close and slid down twenty feet or so, couldn't go any further, managed to get back up. What they did the third day, I don't know. Anyway, they had some food, they picked thimbleberries, and there was plenty of water--it usually rains at night up in the mountains---so they didn't suffer from thirst. But there they were. He was exhausted and couldn't go any further; she was sturdier than he was. So word came down where they were and I started right up the middle of the valley and up the cliff with several of the mountaineers with me and the National Guardsmen.

We climbed up and we got to them, above the cliff. We had ropes and one stretcher. We had to put him on the stretcher. The nurse was able to walk; she was in pretty good shape. We tied a rope on her and held her back because going down a cliff it's easy to slip and fall. We had, I guess, eight people carrying the stretcher and we had two ropes from the back end of it with ten or fifteen men on each of the ropes to hold back the stretcher, to retard its descent down the cliff. So we finally got them down, Marder lashed on a stretcher carried by eight men, and there was a whole reception committee there at the bottom--reporters, photographers. Dean Bachman.

Well, I don't know just what happened. I think they were taken to a hospital. She was soon discharged; he was eventually discharged, no serious physical injury. Marder was a specialist on naval tactics of the Russian Imperial Navy. He knew about tactics of a foreign navy, but it didn't prevent him from doing the stupidest thing possible in the Hawaiian mountains. (laughs)

I didn't issue any publicity on that. Marder talked to reporters, gave stories, and when he talked to a university reporter for the student newspaper, he talked about their experiences with wisecracks and one of them was, "If you go into the mountains with a girlfriend, make sure she's a young girl." Well, that's not what a gentleman would say and when that got published in two or three weeks the girl left the island. There was no reflection on her whatever; she was a lady.

A: I would like to think that he meant it in a sense that she had greater stamina and survived it better than he did, but I'm not sure that's how he meant it. But people to this day still go up there and get lost and have to be rescued.

S: Well, nowadays...

END OF TAPE 6/SIDE 1

A: You were saying that there's a special team now to provide rescue for this type.

S: That is, oh, what's that district near the center of Honolulu, right next to is a rather depressed, semi-commercial district?

A: I'm thinking of Mapunapuna.

S: Anyways, there's a fire station down there near the center of Honolulu which has a rescue team.

A: Is it Kakaako?

S: Yes, Kakaako. Kakaako fire station has a crew of trained men, trained mountaineers with equipment and they will respond to a call and in daytime try to rescue. they don't go out at night, which is sensible, because all you do at night is get lost yourself. So I haven't been called on to organize rescues anymore.

Well, to turn back to personal things, my wife and I soon began to attend a church here in the islands, a Congregational Church, Central Union Church, which was not the church we were trained in or were members of but was the closest we could find. It was the most liberal of the churches that were then available in the city. It's a beautiful church, large church, several thousand members, well supported, a church that's a pleasure to attend. We both took part in it, were active. They spotted me after a while and made me one of the officials and moved me up and eventually I was senior deacon.

My wife Betty was active there and taught Sunday school for a period. One time when she was there teaching a Sunday school class one of the other teachers rushed up to her in distress and said, "Your son Robert, he's run away from class." Well, Robert didn't care much for the theology that was taught in that particular Sunday school class and he couldn't stand it any longer so he ran out and climbed a coconut tree. He got up in the top of the tree and sat there and paid no attention to the teacher who tried to call him down. (laughs) "Well," said his mother Betty, "how's Robert? Is he hurt? Is he in trouble?" "No. He's sitting up in the coconut tree." "All right," she said, "leave him there." (laughs) So he stayed there until the teacher stopped harassing him and eventually came down, and came home.

A: Well, Betty was a wise mother. (laughter)

S: Well, probably about 1948 or somewhere in there, Betty decided to try to organize a branch of the church that we had both belonged to, that is, the Unitarian Church. She gathered together a group of people who were interested and eventually, the next year, they started a Sunday school and, I think, two years later they called a minister and started a church which still exists. They now have their own large house on Nuuanu Avenue which they use as a church.

A: Well, I thought there was a Unitarian Church on the Pali Highway, too.

S: That's it. On Nuuanu.

A: On the Pali. I've been there. That's a lovely place.

S: So she was very influential in starting it. All the committee meetings of the groups trying to get organized met at our house. I'll change the subject and start telling about some of the excursions that I made, botanical exploring trips. In 1937 in the summer I went down to Fiji. The principal island on which Suva is situated is Viti Levu, V-I-T-I L-E-V-U. That's a large island and has a mountain mass, quite a considerable plateau, something of over 4,000 feet in altitude and although Fiji had been botanized since the 1840s, no botanist had ever succeeded in getting on top of that mountain so I decided I'd go down and try it.

I went there and contacted the local officials and with their help hired an interpreter. He was a half-caste chief, half white and half Fijian. Fijians, as many people would know, are a Melanesian people, that is, a dark skinned people, but they are unique in having a head of hair which is kinky, but stands straight up. It makes a mop about--the hair stands up about six inches--it makes a mop a foot or more in diameter of dense kinky, black hair. It's not only picturesque, but it's quite an experience to hear a man or a woman comb their hair. They have a comb which is a wooden plank about two feet long and it has three or four times, six inches long, carved in the end of this plank. And they start holding the comb down at the side and inserting it into the hair and then with a heave of their shoulders and their arms "Whoosh" they go crackelty, crackelty, crackelty. It's quite a noisy performance. (laughs) They're very picturesque people, tall, muscular, stately, with an excellent physique and a language...well, there were six or eight dialects, but the dialect of south, the Mbau dialect, southeastern Vita Levu has been adopted as the official Fijian language. It's completely different from Hawaiian, Polynesian, nothing in common. I knew none of it so I needed an interpreter. And I was successful in hiring one, so he could act as a guide and an interpreter for me.

When I explained what I wanted, we planned it and we bought supplies, went by truck to the end of the road, up the Rewa, R-E-W-A, River, up the left-hand fork, the Wainimala River to the end of the road. Then we hired ten or twelve porters because I was taking botanical equipment along with me (not only collecting equipment, but drying equipment), a small kerosene stove, a framework that would hold a press about two and a half feet above the stove, corrugated pasteboards to use as dryers, and so on.

I think we hiked for three or four days following the general course of the river, much of the time walking in the stream beds of small creeks, brooks that came down as

tributaries. Not easy going. We passed a village about every five or six miles and we had to stop at each village because they knew we were coming. The Fijians have a system of communication based upon drums. They will send a message by drum, the beats of the drum being a code which is known. The drum is made out of a log about eight feet long and two and a half or three feet in diameter, hollowed out, but with partitions put inside of each end and a great cavity in the middle. The drumstick is a club about five feet long, the larger end about six inches in diameter, and they raise the club over one shoulder and bring it down "Wham! Bang" against one margin, one rim, of the central hull, and it makes a resonant "Boom! Boom!" and it can be heard for miles.

So as you leave one village (demonstrates with tapping on desk) in the next village they know you're coming and something about what kind of a person you are. When you get there, usually the chief is there and usually they have the senior members of the tribe called in and they're sitting around in a circle and they have yanggona, Y-A-N-G-G-O-N-A, that's the Fijian name for kava already prepared, already grated, ready to mix as a drink, ceremonial drink of welcome, and you sit there and go through this ceremony of welcome at which they serve first the chief, then the principal foreign guest, the principal visitor, and then the next senior local person, then the next senior member of your party and so on. And it's an interesting experience.

They prepare the drink by either mechanically grating the root of the kava or by having a young woman chew the thing into paste and then putting it in the bottom of the bowl, then they bring water in and a bamboo pole and stir it and prepare this drink which looks like, well, weak pea soup. It's a heavy suspension of grated kava root. They bring you a bowl of it and the bowl is half of a coconut shell and you're supposed to drink it all in one gulp. You're supposed to take it all down, and if you do that they thump on the ground (demonstrates), "A theoa nai athana. E an dina." "It is finished. He drank it all." And then the thing goes on; it takes quite a bit of time, but you have to do it.

A: And this happened in each village as you went along?

S: Each village. We finally got to the last village, Matawailevu, which is at the foot of a very steep proclivity up to the summit of the mountain. I stayed there about three weeks and each day my interpreter and I went out and collected the plants of the upper valley there on the slopes of the mountain until finally we felt we had done the surrounding area; we were ready to climb the mountain. We planned, I think it was a four day trip, carried food and my light tent which weighed only three and a half pounds, and we backpacked and then climbed it. Two days going up, the third

day finishing the climb and getting on to the summit, and we were on the summit about two and a half hours in a driving rain. Well, in a dense forest, in a driving rain, about all you get are raindrops. It's very difficult to collect specimens, to find them and to get decent specimens

I made a general collection there, about all we could stand for and later on it turned out I had found a new genus of palm trees, *Gomocladus*. And that, by the way, has never been found again. A palm specialist, Dr. Harold Moore, of Cornell has made two expeditions down there and he had not succeeded in rediscovering that rather unique plant. Well, on the fourth day we went down and went back to Matawailevu. I finished drying the specimens and then my interpreter said, "Why can't we ride rafts down the river? Will you pay for rafts?" I said, "Yes, I guess so. It sounds easier than hiking out. What'll they cost?" We ordered two rafts. I think each raft cost me \$2.40 or something like that. Those were the only boats I ever owned, those two rafts.

They were made by cutting bamboo poles about twenty-five feet long, taking a bundle of them a foot and a half in diameter, tying it as a bundle, laying them down with the smaller end forward, then laying crossbars on the ground and laying a single layer of bamboo poles on top of those and lashing those onto the crossbars, then lashing the round bundles as gunwales as side gunwales of the raft, then pulling all the small ends together for the bow of the raft or boat or whatever you want to call it.

The bamboo has internodes, that is, spaces between the joints that are hollow so the bamboo is very buoyant. Empty, a raft like that floats pretty high. I think the water almost goes through the bottom layer. The rafts were finished by putting a platform midship, that is, putting crossbars and other bamboo bars to make a seat and on that platform passengers could sit and ride or freight could be lashed and carried in that way. So my interpreter and I rode as passengers on the first raft. The freight and luggage went on the second raft and the rafts were handled by a single man on the aft portion of the raft with a long bamboo pole.

The river was shallow. At first it was only six inches or a foot or more deep, but soon it became larger and deeper, but everywhere he could direct or push the raft by pushing on the bottom. Well, the river was fairly swift and every now and then there would be rocks, reefs or very sharp bends, and if I looked ahead I'd, "Oh, we're going to hit that rock." The raft could not be steered or directed very quickly to one side; it was directed slowly. Even pushing on the side didn't do it immediately. A twenty-five foot loaded raft doesn't get pushed aside quickly. So at various times we hit rocks and usually that would cause one or more of the

joints of bamboo to break. You'd hear the pop or bang of the break, the raft would shiver, then it could be pushed free and you could go on. That could happen repeatedly and everything was well except the lashing of the entire raft. The side gunwales, the bottom and so on, was made by vines from the forests and those vines were fairly strong. They were pliant, but they could be cut or broken when the raft ran into a rock. And if you cut too many of them, the result would be that you and the separate bamboo poles would be floating in the water.

We didn't hit that many rocks and we arrived safely. We rode for two days down the river in the rain. It was cold because of the rain, but it was an interesting ride. And then eventually we got to a landing near a road. We pulled up there and unloaded and went hunting for automobile transport, having pulled up the two rafts on the bank and walked away and left them.

A: Well, basically, they were disposable rafts. You just went from one point to another.

S: They were the only boats I ever owned. (laughter) Similar rafts were constructed there because they used them to float cargoes of bananas down to near the seaport where they could be transferred to other boats, to steamers, to be taken down to Auckland or Sydney where they would be sold. So they knew how to build rafts.

A: And they served the purpose; that was what they needed them for.

S: I have a son-in-law, who is very fond of rafting in white water rivers on the mainland, and after riding with him once down the Green River in Wyoming and Utah, he said, "I'm editing a magazine now. Won't you write me a story about your rafting." So I wrote him a story about rafting on bamboo. (displays copy of article)

A: Oh, I remember you mentioned that story in this other article.

S: I tell the story a little more freely there.

A: Well, you don't get seasick on rafts do you?

S: No, or rowboats or canoes. While I was still teaching I made another major expedition down to the island of Rotuma. That lies about 200 miles north of the northernmost of the Fiji Archipelago and I couldn't find any record anywhere of a botanical report on the island of Rotuma so I planned this expedition. In the summer of 1938 I went down there by steamer to Suva, Fiji, and within a week I was able to get steamer transport to Rotuma which is remote, has only one

economic export, that is, they export copra, dried coconut meat. As a rule, they have two visits a year by a small steamer to collect the copra,

So I went there and was well received by the assistant district commissioner who was much surprised at my arrival although I had obtained permission and sent word down to Suva, Fiji, which governs Rotuma, that I was coming. They hadn't taken the courtesy to tell the people in Rotuma that I was coming. However, I was well received and the commissioner said, "Why don't you go and call on the agent of Burns-Philp Company, Harold Gow. He's living alone in a house and will probably be glad to take you in to live at his place." So I went down and called him and found him a very pleasant Australian man who was there running a store and buying copra for the Burns-Philp Company. He had been sent there because there were four companies with agencies there buying copra and the natives kept pushing at them and trying to get one of them to pay more for copra than the other three and that way edging the price up and up and up. And they had done that until it was no longer profitable to buy the copra.

This man was sent there (he was a middle-aged, experienced merchant) to try to get all four of them to agree to lower the price to one at which they could make a profit out of the business. Otherwise, they would quit. So I lived with him about six weeks, slept there, set up my drying apparatus in his house, dried my plants there, ate breakfast and supper with him, carried lunch from his house when I took off each day botanizing.

Well, Rotuma was an interesting place. It had about eight mountains, the highest about 850 feet high (many of the others nearly as high), so it was mountainous nearly throughout. The people there, Rotumans, were recognized as a separate group, but they were the funniest looking people. They had hints of Melanesians, Fijians, in them; they had hints of Polynesians in them; they had hints of Micronesians in them; actually, Rotuma is the spot where Micronesia, Melanesia, and Polynesia meet. So it's not strange that they had mixtures.

Their language, in my experience, was something unique. I started to try to learn it as I have tried to learn the language every place I've been. But I pretty soon gave up, because they not only have a peculiar grammar, but they play a sort of word game with their words, that is, if the word is motusa usually they will say not motusa but satumo, that is, they will invert the syllables to see if you're bright enough to figure what it really is. Well, that's a nice word game, (laughs) but for a visitor it is too much.

A: For somebody trying to learn the language...

S: It was almost an impossible situation. So I tried to record the native names for the plants I collected, and to my dismay I discovered that about ninety percent of the island had been cleared and had become a great coconut plantation. There was only one good native forest left and remnants of it in some other places. So I was much disappointed that I got there after they made it a coconut plantation.

However, I made general collections and got about ten or fifteen new species and got other native plants and also representatives of the weeds and the ornamentals. Since it was a remote and little visited area, I also collected insects. That is, I hired native boys to collect bugs for me and I also collected land shells, snails. That is, one of the important scientists at the Bishop Museum was Dr. C. M. Cooke, Jr., a malacologist, and keenly interested in the terrestrial snails. Well, there weren't very many terrestrial snails. I collected those. I also collected sea shells. And my method of doing that--I took ten pounds of hard candy with me, and every night when I got back there'd be a cluster of urchins who'd been out picking up seashells, and for a handful of seashells I'd give one piece of hard candy. By that method I got ten gallons of seashells, the only collection ever made there.

There was a son of a chief who was bright and pretty well educated and was a native medical practitioner, a graduate of the practitioners' school in Fiji which is a two year medical school--accepts any young man without any other prerequisites--and their graduates serve as doctors throughout many of the Pacific Islands. He also had a good knowledge of Rotuma and I got him to verify and correct the spellings of the names, the vernacular names, of the Rotuman plants.

The history of that island is interesting. The first missionaries who came there were the London Missionary Society. I think they're Methodists and they came to the principal western end of the island where the town of Motusa is situated and they have a fine big church there, and they had proselyted and converted most of the people of the central and western end of the island. Then a Catholic missionary came to the eastern end of the island. He built a cathedral. They were still building it when I was there. He converted the natives of that end of the island.

Well, that was fine. But they got into a conflict, the two religious sects, and they got into scuffles, and they got into struggles, and then they got into war. And when they finally imported cannon to shoot the people on the other end of the island, the British officials from Fiji came in and confiscated the cannon and threw out the missionaries of

both groups and told the people there to behave themselves. New missionaries came and carried on the sects that were there, but there have been no more armed conflicts between them. (laughs)

A: And that was in the late 1930s?

S: I don't remember. The war was over when I was there.

A: Oh, I see. You spent quite a bit of time there, didn't you?

S: I spent all summer and by the end of August I had finished my immediate exploration. I wasn't finding anything more interesting, and the assistant district commissioner sent word to me that tomorrow or the next day there was a ship coming in. "You can probably get passage." Well, I had arrived in June with no sure prospect of getting off until November or December and I was due back in Honolulu in September to resume teaching so I was delighted.

So I packed up my goods and waited and when the ship came I went to the beach and tried to thumb my way on passage. Well, the ship was the H. M. S. Wellington a warship of the British Navy which was used as an island visiting trip in areas governed by the British. The captain very kindly agreed to take me to Lautoka on the west side of Fiji, west side of Viti Levu, and he said, "I'll take you there if you will agree to off-load in the harbor, that is, I will wireless and request a wherry to come out and you will pay for the wherry and you will pay for the transport." I was very happy to pay the expenses. So I had a very nice three day trip down on the H. M. S. Wellington.

Then in Lautoka I hired a small truck and loaded my luggage on it and we set out to go around half of the island, half of the circle of the island to Suva which was the big seaport. I hadn't seen that half and I thought it would be an interesting ride. I remember one time we were approaching a wooded area and there was a windfall, a tree across the road, and I exclaimed "Oh, we're going to hit." The driver didn't seem to care. He just drove right into the windfall. Well, the windfall was so situated that its ascending branches were across the road and we hit them and they acted like a spring and gradually slowed us down and threw us back with no particular damage.

So we chopped out the tree and were able to go on. But after a little ways we heard a scratching sound on the ground and stopped the car and looked down and the battery was dragging on the road. Apparently the impact against the windfall had broken the rusted cradle in which the battery rests and the battery had fallen down and was attached only by the cables to the rest of the car. Well, we used rope and

tied up the battery so it wasn't resting on the ground anymore (laughs) and drove on into Suva. And within a few days a Matson boat came along and I had easy transport back to Honolulu.

Very soon after I made that trip to Fiji another botanist on the staff of the Smithsonian (he had been once to Fiji) resumed work there and announced he was going to write the flora of Fiji and going to explore it thoroughly. So I turned most of the plants that I collected over to him and I don't remember that I published any particular paper on Fiji. I published some on Pandanus from Fiji, but no general studies.

In the fall of 1949 I took time off (because that was my last year at the university, it was past my retirement) and they had appointed me halftime to teach one course and direct the Lyon Arboretum. Well, since I was only paid half salary I decided I could take half of the time off and I planned a three or four month trip down into New Guinea and Queensland. So at that time I was busy, among other things, studying the Hawaiian hala, that is the genus Pandanus, for the Pacific and I wanted to collect Pandanus in New Guinea. There were about 150 species of Pandanus known in New Guinea at that time. So I went down.

I asked for permission and got recommendations from Leyden from the Dutch. Western New Guinea was a Dutch colony in the Netherlands Indie and with those recommendations I was granted permission to go there. [In 1963 Netherlands New Guinea became West Irian] Ordinary tourists were not accepted. So I went from Manila to Biak. Biak is an island in the Geelvink Bay on Northern Dutch New Guinea, the principal airport for that section of the island. When I landed there I was greeted by a tall, pleasant young Dutchman who asked if I was Dr. St. John. I acknowledged it. And he said, "I am so and so...and I am the forest botanist of the New Guinea forest service and I have been ordered to accompany you on your travels and assist you if you consent.

Well, I immediately consented with great pleasure to have a local official go along and help me. So we started in and spent a few days botanizing on Biak and then we went down to Manokwari which was the principal forestry base. It was also on Geelvink Bay and we spent a week or ten days there. Pandanus is an amazing thing there. There are species which are...

END OF TAPE 6/SIDE 2

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S: Well, I can resume talking about my hunt for Pandanus in New Guinea. I mentioned my arrival there at Biak Island and

then going to various places. That was the last year that the Dutch ruled New Guinea as a Dutch colony, and I found it interesting to be addressed by the natives always as "Bwana" that is, "Master." Every white man was a "Master" regardless of age; a ten year old boy was "Master" to the natives. As far as I could see, it was a very well-run colony. They had commerce, they had government, and so on. For instance, when we came to Hollandia word came to me, "Would you like to meet the Governor?" "Well," I said, "I don't need to meet the Governor, but I'm perfectly willing to call on him and talk to him." So we made an appointment and went to meet the Governor who was a retired professor of anthropology, a Dutchman. We chatted about the work I was doing and the facilities.

"Well," he said, "when you get back home to Honolulu, I hope you will tell your colleagues in anthropology that we have unlimited opportunities for research work in anthropology here. In our half of New Guinea we have 150 or 200 tribes, each with a different language. Usually each valley is occupied by one tribe. You go ten miles across a mountain range and you're in entirely new circumstances. And there's an equal number in the other half of New Guinea. So there are about 300 or 400 new languages and it seems almost impossible to cover that area on that attitude."

"Well," he said, "we have three recognized areas: we have the controlled area which includes the seaports and the towns along the coast where we have been in contact for some hundreds of years and there it is normally peaceful; we have the uncontrolled area which is further back in the mountains and valleys and there we have some contact with the natives, and we can send a police officer into that area and usually he will come back; further back in the mountains we have the semicontrolled area from which no policeman has ever returned. Now, I can send your friends, your colleagues, into any one of those three areas." (laughs)

A: What a generous offer!

S: Well, New Guinea has a great mountain range--I think it's 18,000 feet high--they have permanent snowfields and glaciers on top of the mountains near the equator. The island is 1,200 miles long and quite broad, and so the island in itself, the topography, the flora, is exceedingly interesting, as well as the interest in the natives.

I was very fortunate in having this forest botanist travel with me, and we travelled almost wholly by air. They had a good air service. In every hundred or two miles there'd be a settlement and an airport near a town or near a police station or something. So we got around and I guess we went to seven or eight localities. Before I went there, there were seventy-five species of Pandanus known on the

island. I found about, perhaps, a third of those, recollected about a third of them, and found about seventy-five ones that had never been seen before by scientists.

So there's a great development of Pandanus in New Guinea, and they grow as trees up to eighty feet high. Some of them have heads of fruit a foot and half long that weigh forty pounds apiece. One of them I collected there had leaves twenty-one feet long and twelve inches wide. The problem of collecting adequate specimens of things like that is a real problem for any botanist.

A: Yes, what would you do with a twenty-one foot leaf?

S: Well, I'd take the whole leaf and keep the midrib and one side and cut away the other side just to reduce the bulk, and pleat it, like accordion pleats, four or five pleats, and cut it off and go ahead for the next sheet and the next sheet. The head of fruit you can't press, you try to dry, and then you get an axe and split it open. I used to save one half of a fruiting head and break up the other half to send out as duplicate specimens to other museums.

One striking one that I collected there, Pandanus biakensus, had prop roots twenty feet long, five inches in diameter, and my native guide when he was ready to climb to get a fruiting head for me, cut steps up the prop root. It was an amazing thing. And there are coastal species there, species of the lowlands, species of the mountainsides, and species of upper forests. They grow from sea level, different kinds grow from sea level to 9,000 feet altitude. So there's enough to keep a Pandanus specialist busy there. I moved from there to east New Guinea which was then administered by Australia. It is now Papua, New Guinea, and a free country. The Australians were in charge still and they had more commercial and personal settlement development there than the Dutch had in western New Guinea. And they had more police stations. And every native who lives in that region with Pandanus knows Pandanus.

He calls it by some other name. But to communicate with the native when we had no language in common, I would make a drawing of a leaf and show jagged teeth along the edge like a band saw, and then draw a head shaped like a pineapple and put crosshatches. Always they recognized it; they knew what Pandanus was. And at six or eight places where they had police stations in the mountains and I didn't plan to go, they would send an airplane up one day a week or one day every two weeks, and they would send a radio message beforehand telling them that they wanted Pandanus, to ask the natives to bring in specimens. And the pilot would pick them up and bring them back and I'd have four or five or six different kinds from each mountain area.

Also, I got around by Land Rover as well as by airplane. And I still remember landing at Bulolo, the gold mine area in the mountains in Australian New Guinea, because the airfield was flat as a plain, at a 35 degree angle. When you flew straight into it, it looked as if you were going to fly into the mountain. (laughs) And taking off from that, downhill, also was a queer experience. The only airport tilted on edge that I've ever seen.

A: They just didn't have enough ground to level it off.

S: No level place. And I remember another place. We went in from Wewak to the Sepik River, and I've forgotten the name of the town, but I flew in there with the Bishop. The Catholic Church had a mission down there with several inland stations, and they had a small plane, a Cessna, and the Bishop was a pilot and I made arrangements and he flew me into this place. We landed on this grass strip and the grass was so high that it hit the propeller blades as we taxied along the runway of the airport.

The town there was interesting because I was there several days including the first of January, New Year's Day. Well, I wanted to work (nobody else did) and the only way I could get a native to go with me and help me get the native names and locate some of the Pandanus species, I did it with the police. And the police chief ordered two constables to go with me, two tall, black natives, and they went with me for half a day.

I came back and I found they were having a big reception at the assistant district commissioner's estate and everybody was invited. So I got on clean clothes and went there. And besides the district commissioner, there were the merchants from the town, and there were missionaries, and there were crocodile hunters because the Sepik was the world's best source of crocodile hides. These crocodile hunters would shoot the animals, and bring them in and sell them to an agent there in the town. And that mixture of missionaries, crocodile hunters, and administrators was an interesting mix. (laughs)

Well, the district commissioner was celebrating New Year's and he began four or five days ahead of time, and I guess he was still going after it. Because a day or two later I wanted to go, and he had to go to the airport and look at it to see if everything was right to open the airport, to be ready to receive planes. And he went there, drunk, and looked down the runway and it looked very hazy to him so he closed the airport. He did that for three days in succession and it never did clear up in his eyesight.

But finally I got word sent to the Bishop and the Bishop didn't care (laughs) and he flew in and took me out. There's another story about that airline. The Australian government said that they couldn't have an airline simply as a part of a church; they must incorporate it as a business firm. They could do it, they could be it, but they must go through the business form and so they did. They had a president, and a vice president, and a secretary and so on, and they had to have a name. And the name that they chose was the Sacred Heart of Jesus and Mary, Incorporated. (laughs)

A: Didn't you feel safe though, when you were flying that airline? (laughter)

S: Enough of New Guinea.

A: And the Bishop piloted? This was commercial?

S: No, it was run by the church for the benefit of the church, but they would take private people if they had room. If it worked out, for hire they would take other passengers.

A: Oh. Did they have other pilots besides the Bishop?

S: Yes, two of the fathers.

A: Well, I think I'd feel in good hands with those guys. (laughter)

S: Well, I can't tell everything I did with Pandanus, but I should mention that one of the first things I did was in 1946 and I went out to the Marshall Islands. I had been out in 1945 to survey Micronesia, former Japanese Micronesia, to see where we could do scientific work, and on that trip...it was just the end of the war and there was no accountability for the use of military materials. So the officers stationed out in those areas were very generous.

And I went out leading a team of three other professors from the university, and we went to the Marshall Islands first. There they gave us an LCI, a landing ship infantry, as a taxi. We also had a PBY to fly us from one region to another. So it was luxurious travel. When we left there, we went to Kusaie by LCI. We were there three or four days and then started for Ponape and on the way the young Lieutenant who was captain of the ship came to me and said, "We're approaching one of the atolls. Would you like to land on Pingelap for three hours?" I said, "Well, yes, very much."

We approached there about eleven o'clock and the natives saw us and came out in their outrigger canoes. I jumped into the first canoe that approached the ship with my packsack and my bush knife, and equipment, camera, ready to collect

specimens. And none of the others, anthropologists, ornithologists, entomologists, wanted to go before lunchtime. They wanted to eat lunch before they went. I had three hours on shore and they had one hour on shore as a result.

I went ashore with a very fine man and he led me around and I collected and got the native names of the plants and so on. I was only ashore for three hours, but I already knew something about the plants of Micronesia and when I got back I eventually wrote up an article on the flora and the language of Pingelap. And that was the first scientific report on the island of Pingelap. And we were the first ship to come along in three years. In wartime they had been cut off from ordinary things. They were dressed in rags (some of them not very many rags) and everybody in the village, 150 or 200 people, wanted to greet me and shake my hand when I came ashore. I had a hard time getting away from them with my guide. But we did.

A: Was that the entire population, say 150 or 200?

S: Yes.

A: So the whole town turned out for you. (laughter)

S: Well, from there we went to Ponape. We went to Guam. And in Guam the admiral offered to send us by airplane up along the northern Marianas Islands. I didn't think we had time for that. So instead we went down to Palau. And in Palau there had been furious fighting when the Americans came in at...I've forgotten the names. We landed on several of the islands of Palau and finally went by picket boat up to Koror. Well, we landed on Koror, and it had just been occupied by the Americans.

The American force was a Marine captain and about 150 Marines. They had just received the surrender of the Japanese colonel and 14,000 Japanese troops. Well, that's quite a job to take 14,000 prisoners and care for them when you have less than 200 people yourself. So the captain, the American officer, treated the Japanese officer with courtesy and told him that it would be some time before they had all the supplies to care for them properly so wouldn't he please keep command of his troops while he was in prison? (laughs) I'm sure that violated every regulation of military conduct, but if he hadn't done that, he would have been slaughtered by the Japanese.

A: It made good sense, didn't it?

S: And that Sunday the American captain invited the Japanese colonel to dinner and I and two other professors that were with me went to dinner, this social occasion between the opposing officers.

I went to the Marshall Islands in 1946 taking along Professor Donald Rodgers and my student Richard Cowan, and by that time, a year after the war, everything had to be accounted for, everything had to be balanced, so we couldn't go by plane out there. We had to go by Navy ship, an LSM, a 300 foot vessel, it would land tanks and things, it was steered by a little lever about four inches long. They'd give a slight turn to port and the ship would swing 30 degrees to port. And a slight turn to starboard and it would swing 30 degrees to starboard. And we left a trail like a serpent's trail all the way to Kwajalein.

And when we got there, this ship was sent out to be a station ship for the officer administering the Marshall Islands. But the admiral in Guam didn't have a ship like that, so he wanted it. And we sat on the ship, anchored in the lagoon, for ten days while these officers sassed each other back and forth by radio, each one trying to get ahold of the ship. (laughs.) Finally, it was left in Kwajalein.

Then we had ship transport down among the various islands of Micronesia. And that was interesting. From Australian New Guinea and Papua, I went down alone to Queensland and there I made arrangements. I requested to have one of the botanists from the Queensland herbarium meet me and go in the field with me. I suggested Dr. Stanley Blake, whom I knew and respected, and they kindly sent him to meet me at Cairns and travel with me.

They didn't send a Land Rover because it was hurricane season and they didn't want to risk government property in hurricane season up in Queensland. It was all right for us two botanists, we didn't count, but they couldn't risk the automobile. So we had to hire transport locally.

A: Things like that keep you humble. don't they. Botanists are expendable, but not Land Rovers. (laughter)

S: We went from Cairns, which is a lovely place, and the Atherton table land, which is the high lands above there, a splendid area, we went from there up to Cooktown which is the northernmost settlement in eastern Australia. That was where Captain Cook's ship after striking on a coral reef managed to get on the beach and there they were able to careen the ship and patch the holes. And Captain Cook carved his initials on a tree there which was right beside the terminus of the railroad and that tree was there for a century or more, but finally the railroad crew used to boil their billy of tea there and they burnt down the tree inadvertently. (laughs) So the tree is no longer there, but Cook's memory is there.

Well, in 1961 and 1962 I was in Saigon, Vietnam, southern Vietnam, and while there I continued botanical

explorations, especially for Pandanus. I did a fair amount in Saigon, and I took the opportunity to go to Thailand and in Thailand I had made contact with a friend, Mr. Tim Smitinand, who was forest botanist for the Royal Forest Service. He offered to take us, my wife and I, on a month's tour. And on that tour he said, "If you'll allow me to plan the menu, I'll guarantee that you folks won't get sick during your stay here."

Caucasians, particularly from another continent, when they go to south Asia can very easily get amoebic dysentery and various other infections and they have to be very careful with their diet, eat cooked food or boiled food. So he planned the menu, and in the morning we had bananas. Well, bananas come nicely wrapped in their own skin and they're perfectly sterile and they're perfectly safe to eat. We had bread, which had been baked, and hard-boiled eggs and you can buy hard-boiled eggs in the markets there. The bananas and the bread and the tea. And for lunch we'd have tea, and bananas, and hard-boiled eggs. And for supper we had bananas, and tea, and bread and hard-boiled eggs. For thirty days! (laughs)

A: You had so much potassium you didn't know what to do with it.

S: Well, I still eat bananas, and still eat hard-boiled eggs as they come along. If you do exploring, you learn to take circumstances as they are. And we didn't get any intestinal infections.

A: You got bored, but you were well.

S: I did come down with malaria there although I was regularly taking chloroquine which was supposed to be the up-to-date, best medicine for malaria at that time.

A: But you had said previously that some strains of malaria were resistant to anything other than quinine.

S: Yes. I still take quinine. I've found how much I have to take (I've had four or five relapses) but it's very simple to take quinine twice a week and then nothing happens.

Another summer I went to Burma. And at that time, Burma was not on friendly terms with Vietnam, South Vietnam. They weren't at war, but they were mad at each other, so they had no diplomatic communication and the traveller had a hard time getting his visa allowing him to enter. And I was told the thing to do was to apply with the British Embassy in Saigon in time, so three months in advance I applied to them and they said they would forward the request. And two and a half months had gone by and no reply. Well, finally, when the time came to go, I went but stayed over an extra day in

Bangkok, in Thailand, and walked into the Burmese Embassy in Bangkok and applied for a visa, saying nothing about the fact that I had an application on file--and within four or five hours I got the visa. And the next day I went. So I arrived a day late and then had to try to find the forester who was to take me around. He showed me, perhaps, half of the country. We went to the delta of the Irrawaddy and in a government boat, spent three days going up and down the channels of the Irrawaddy, which was interesting. Not much Pandanus, but some.

And then, he took me down on the southern peninsula of Burma and there they took an officer and twelve soldiers to guard us as we botanized, because there were three revolutions going on in the country at that time; native tribes that felt they were themselves, but not Burmese, and they wanted to be independent countries and they've been fighting for years to establish their right to be independent countries and they haven't yet succeeded. So that was interesting.

When I left Saigon in 1962, I headed for the Indian Ocean going by Java and Perth in western Australia, and from there by plane to Cocos-Keeling Island, an isolated island in the middle of the Indian Ocean. There was no Pandanus known there: I was sure there must be some. That's a privately owned island. The Australian government has a lease, a contract, for an airfield on one of the islets, but you can't leave the airport, being a private island, being owned by one family, now I think in its third generation and, only by invitation can you go to that island.

Well, I managed to get an invitation through Captain Irving Johnson, who used to sail the brigantine Yankee around the world with a crew of students. He acted as go-between and I had this invitation. And went and stayed there. It was interesting to stay there, the master's house, which was like a fort. It had a twelve foot stone wall around the lot and the house itself had no windows on the ground floor and walls three feet thick and barred windows up above, because when this family established a coconut plantation there, the only way they could get laborers to work in the plantation was to get them out of the jail in Singapore. So they had seventy-five or a hundred criminals as laborers, and they had to be able to protect themselves against...(laughs)

That island is famous because it is the only island on which Charles Darwin landed when he was sailing on the Beagle around the world. And in studying that one atoll, he developed the theory of the formation of atolls in the world, which isn't now accepted wholesale, but he was seventy-five percent right. And it's remarkable what that young Mr.

Darwin, without scientific training, was able to do because he had the intellect.

From there my wife and I went to Mauritius Island in the Indian Ocean which was the only place in the world where Pandanus had been well studied and well reported on. One resident botanist and one sugar cane technologist had for fifteen years studied the Pandanus there and made an excellent report on the dozen or fifteen species that grew there. And it was the only spot in the world where Pandanus was well known. I found no new ones because two local people for fifteen years had been working on it.

A: Were the species there anything new to you?

S: Oh, yes. Oh, yes. Mr. Vaughan, V-A-U-G-H-A-N, and Mr. Wiehe, W-I-E-H-E, were the ones who had done the study there. I hadn't planned to go to the next island, but they told me I ought to so I didn't know any botanist or scientist there to communicate with but on Mauritius they did know and they said, "We'll fix it up for you." So we flew there and we spent a week on Reunion Island.

Isle de la Reunion, which is still a French department of the Republic of France. It remained French although Mauritius had been captured by the British in one of the French-British wars and had been kept as a colony. Although all the inhabitants are all French, still spoke French, still they were all British citizens. The British hadn't taken Reunion because there wasn't a good harbor, so it would be difficult to develop an agriculture there with no harbor for the ships to come in. So they left it alone.

When we arrived there, we were met by Monsieur Emile Hugot, H-U-G-O-T, who was the secretary of the sugar plantation experiment station, a very fine man. He said, "If you would like it, and you will get up in the morning tomorrow and come to the airfield at six o'clock, I will show you the island from my airplane."

He had a small three or four private passenger plane, which he had flown down himself from France. So we went out there and he took us up and for two hours we did figure-eights around the eight volcanic peaks, 8,000 feet high, which are the center of that island, one of them an active volcano.

A: How big is the island?

S: Oh, I suppose thirty miles in diameter, more or less round.

A: Well, in two hours you must have seen it all.

S: Yes, we saw the island from above; we had a bird's eye view. It was a very interesting place. Mauritius had what? fifteen species. Reunion I think had four known species; I found two more. But even though half of the island was virgin, forest uncut, untouched and well-protected habitats, well-watered because of the height of the mountains to catch the rain clouds, a very interesting island.

S: Well, I'll try to tell you the story of the settlement of that island. About in the 1700s a mistress of the French king, Madame (I think her name will come to me eventually) knew that this island had been colonized by young Frenchmen. They had sixty young Frenchmen, mostly nobility, younger sons of families that had several sons and there was no chance of the younger son inheriting, and they were looking for a place, so they sent them to this place right next to Mauritius. Mauritius was a tropical paradise, which was the basis for a whole French romantic literature. So here was a similar island right next to it, so here were these sixty Frenchmen and they'd been here three or four years and the mistress thought that these young men were lonely. So she decided she'd get a group of young women, maidens of noble families, mostly orphans. She got, I think it was either twelve or fifteen of them, and she got a boat and a captain and a crew and sent them for Reunion.

Madame de Maintenon. Wasn't that the name of one of the mistresses?

A: I'd have to check that.

S: So they set out for Brazil. That was the way the trade winds blew, but they had to go through the doldrums of the tropics. But the boat was a small, poor boat, poorly handled, and water got scarce and food spoiled and half of the girls died in the tropics.

They finally got a wind and went to Brazil. They were well received by Catholic fathers and sisters there and fed and revitalized. And they set out for Capetown. They got close to South Africa, and a storm...they were wrecked on the coast of Angola.

They got wrecked on the coast and the captain and three girls got ashore. Everybody else drowned, and there they were, without food and equipment, 600 miles from Capetown in a semidesert area with a few roving native tribes. And they walked to Capetown. They were received and nursed and fattened and brought into shape again and nobody would give the captain another ship. So they finally took passage on a ship to Bombay which would go right by Reunion, but the captain wouldn't stop.

So the captain and three girls arrived in Bombay and they were well received there and while they were waiting for a chance to get passage for a boat to Reunion, one of the girls gave up and said, "Yes," to a suitor and she was married in Bombay. The other two girls were transported to Reunion and landed there and they were royally received. Within a week they were both married.

One of them--they both had children, they both had descendants and those are the kamaainas of the island. If you're not descended from one of those two women, you don't count for anything on Reunion. The other girl, Francoise Chatelaine de Cresy, was a very personable girl. She made a fine impression on everybody, enough so that after she had been married for two years, one of the other Frenchmen picked a quarrel, challenged her husband to a duel, killed him and claimed the bride.

He carelessly went fishing with some other men and they threw him overboard and somebody else claimed the bride. She had eight or ten children and they are the aristocrats of the island. (laughs) And my guide Monsieur Hugo was a descendant of Francoise.

END OF TAPE 7/SIDE 1

S: ... Madagascar, a big island off the coast of Africa, 800 miles long, 6,000 feet high, with every kind of vegetation and a great development of Pandanus. It, and the Philippines, and New Guinea are the three great centers of Pandanus. There were about seventy species known there and I collected thirty or forty additional ones. I used airplanes and got around a good deal. I even hired an airplane in one place.

The inhabitants are a curious mixture. They have some Polynesian elements. That is, there were Polynesians who came there and settled on the coast and then either voluntarily moved or were driven inland and they now live in the cold, windy uplands while the Negroes live in the lowland below. (laughs) I'd hoped to find some good linguistic ties, but aside from the common name for coconut and the common name for breadfruit and a few things like that, I didn't get any Polynesian ties.

From Madagascar we went to Africa and landed at Nairobi, and there's a botanical institute there--a botanist there--but the principal French botanist there was in Paris at the time and his assistant was a French woman, a married woman, whose husband worked in the other department of the scientific institute. And she wouldn't go into the field with me. She gave me advice but I couldn't tempt her out of the laboratory, so I was on my own. And I spent six weeks

in Madagascar moving around by airplane and it was a fascinating place.

There are Pandanus species there which you swear look like a spruce or a fir tree, completely different in appearance from the ones we have along the coast here. In Kenya I went to the north section of the coast, and arrived at this airport and the next morning I hiked out and followed a road inland which headed to a river. And I got there and I found the steel bridge, a cantilevered bridge, about 200 feet long had been washed out. They'd had a flood and a baobab tree came down the river. A baobab tree is twenty feet in diameter and a hundred feet high and it hit the bridge and took the bridge out. (laughs)

So they had a go-devil there, a wooden platform hung by wire cables to a pulley and a wire cable on which it slid across the river. I got across the river that way and explored over there. And just before I crossed the river I saw somebody coming along, a white man with a botanical press and plants in his hand and a Negro carrying part of his equipment and learned he was a botanist from the Kew Botanical Garden in London. I went with him the following day, but inland we got no Pandanus.

I went down to Tanganyika and from there I flew out to Pemba and Zanzibar. Zanzibar was interesting. a very old town. They had just thrown out the nobles. A member of the nobility was their ruler, a shah or something of that kind he was called, just thrown him out, but things were peaceful when we were there. Although they were ready for trouble. And all the old houses had elephant doors. That is, they had doors made of great timbers, six inches thick with spikes sticking out, towards the outside, to keep out the elephants, (laughs) but there were no elephants on the island. (laughs) And that is the greatest tourist prize. When a rich tourist from somewhere comes down, he tries to buy one of those elephant doors.

From there I went down towards Mozambique, and I had air reservations from the southernmost town. I think it was Lindi or Malindi, one of the two, and there we would fly to the city of Mozambique. At the airport we were told we couldn't do that; they wouldn't take any passengers there. And I had to fly back one more airport, back into Tanganyika, to get a permit to fly into Mozambique. And when I got there...well, before that I tried to get private transport. There was the Rovuma River that was the boundary and drawn up and anchored in the river or pulled up on shore were about seventy-five or a hundred dhows, D-H-O-W-S, which came from Arabia.

Once a year with the northeast monsoon they sailed to the coast of Africa to load up with timber, with poles,

because they didn't grow any trees in Arabia. Then they'd wait for the southwest monsoon to come along and they'd sail back to Arabia. That's been going on for centuries. Well, I had the bright idea that I could hire one of these dhows and they could sail me across the river and out to sea and land me somewhere south of it. There was no open war, but Tanganyika was playing host to two different revolutionary groups who were trying to conquer Mozambique and there was essentially a frontier, a war zone, and they wouldn't let anybody into it. So we got there and we went to two more cities in Mozambique. And Mozambique was the southern limit of Pandanus. Pandanus is strictly tropical. If you get out of the tropic zone, you don't find Pandanus. For instance, South Africa, no Pandanus.

We went down there to Capetown and went up on the Table Mountain and saw the sights, saw the botanical garden which is a lovely place and then went up to Rhodesia, southern Rhodesia. And there the botanist said that there was only one locality of Pandanus that he knew and that was just across the border into the inner edge of Mozambique. So we drove down near there. Got a local forester and the three of us headed for Mozambique. To get there we had to wade a river which was about chest high. It was not too swift and we could keep our footing so we walked across and went into the Chimanmani mountains and there was Pandanus, an unknown species, very interesting.

That finished our fieldwork of exploration for Pandanus. We'd been in the field for five or six months and it's been my experience that when you've been exploring for five or six months, it's time you got back to civilization where there's a doctor where you can get some treatment. For instance, when I was down there in Mozambique I caught tick fever. It's like the Rocky Mountain spotted fever which is a very serious disease, but it developed when I was in Johannesburg and there was a hospital there and they recognized it and in a week they cured it. So I've had three tropical fevers in my experience. And my conclusion is that I'm tough; I usually survive.

A: You've done exceedingly well.

S: Another time in 1971 I made a trip to a scientific conference to Java and I spent a month in Sumatra exploring for Pandanus. That, I think, is enough to tell about Pandanus and I want to tell about my university contacts and experiences after my retirement from the University of Hawaii in 1959.

During my last year there, I was offered and I accepted and appointed a visiting professorship at Chatham College, which used to be Pennsylvania College for Women, in Pittsburgh, Pennsylvania. This was a Harry Payne Whitney

Fellowship. Whitney of New York at one time made so much money on the stock exchange that he didn't know what to do with it. He had plenty of money of his own, so he thought he'd set up some sort of a foundation with this money. And he had some university contacts and he was advised and he accepted the advice to set up a foundation to endow professorships at small, liberal arts colleges with the idea of choosing professors who had just retired from a larger institution, professors who had some reputation, and send them for a year to this small college to offer work that was never offered at the college.

And when I came home and told my wife that I had been offered a professorship in liberal arts at Pittsburgh, she greeted it with a belly laugh, "Ha, ha, ha." She didn't think of me as a liberal arts person; she thought of me as a scientist. Well, among other things, for a number of years I'd taught Polynesian ethnobotany, that is, the use of native plant materials by indigenous tribes of people, the use of plants for agriculture, dye, medicine and so on, which some people would consider a liberal art as well as a science.

Well, anyway I was offered this (the only person at the University of Hawaii who had been offered one) and so I went to this college, a girls' college in Pittsburgh. It was a nice campus. I don't remember how many students, probably 800 or 1,000 students, and a well-established, going concern. And I taught systematic botany of spring flowers; I taught ethnobotany; I taught history of science and I don't remember what else.

And as soon as I got there I discovered I would be required to give a set of lectures, probably a course, on live television at WQED. That is the educational television station in Pittsburgh. I personally had nothing but disgust, revulsion, at television. I had no use for it. I refused to take part in it when I was at home and here I was in a corner and I had to do it. So I did it. (laughs)

Once a week I lectured for an hour, live, on television with the glaring headlights and heat and my wife used to go and sit in the balcony (the enclosed balcony with a comfortable temperature) and watch me sweating down below, and she was much amused at the mistress of ceremony, a pretty young girl from the University of Pittsburgh wearing a halter and shorts, standing in front of me with a pointer pointing here when I was supposed to look in that direction, and pointing over there when I was supposed to...(laughs) Well, I survived the lectures at Pittsburgh.

A: Well, you were in good company though at WQED. That's the home of Mr. Rogers. (laughter)

S: When they learned that I'd been born in Pittsburgh, that was something greatly in my favor. And the church which my father founded when he was called to go to Pittsburgh, the First Unitarian Church of Pittsburgh, was a going, a thriving concern when we were there. Well, I spent the one year teaching in Pittsburgh and had a very interesting time.

During that period I received an offer, and finally an appointment, as a visiting professor under the Smith-Mundt, M-U-N-D-T, Foundation. The United States has an act establishing Fulbright professorships in countries which were our allies. Then they passed the Smith-Mundt Act which makes it possible to send representatives, visiting professors, to countries which were not our allies, but not our enemies, during the two recent wars.

So I was appointed a Smith-Mundt lecturer to the University of Saigon in South Vietnam, a university about ten years old, which had been built up on the basis of a nursing school and some other small technical school because the university in Vietnam, under the French, had been in the city in the north. What is it? Haiphong? And then when they divided, they decided that some of the goods from the university in the north was sent down and they organized the university in Saigon. They divided things, they thought, equally. For instance, they sent half the library down. If they had an encyclopedia, they sent volumes A to L down and N to Z they kept in Haiphong.

Well, when I got there it was a going university. There were 2,000 students in the faculty of science. It was organized like a French University: Les facultes des lettres, des sciences, de droit et de medecine. Well, I found the botany department in the faculty of science with four professors; a young Frenchman, a Ph.D. from Paris was the head, and there were three others.

I offered to teach several courses which I had taught before but they would have nothing to do with them because they didn't teach individual courses. They would teach a year of botany. That is, the freshman year of botany would touch on the basis of all the branches of botany. The sophomore year of botany would take somewhat more advanced work in the various branches of botany. And so on, up until the fourth year.

So they didn't teach a course in morphology, they didn't teach a course in mycology, they didn't teach systematic botany. They taught freshman botany. So I took part lecturing for an hour once a week in the general course. I lectured on systematic botany. And I was supposed to lecture about French plants at the same hour, saying the same thing that a professor in Paris was saying in the Sorbonne to his students there. I wouldn't do that. I insisted on lecturing

on tropical plants, ones that they had around. And they liked it. They invited me to come back again, and again, and again. So it was an interesting thing.

And when I walked into the first meeting of the class, I asked the chairman if he would go in and introduce me. "Oh, no. You just go in and start to lecture." So I walked in, entered the room and walked toward the platform, the lectern, and everybody jumped to their feet and stood at attention until I spoke to them from the lectern and then they sat down.

And they furiously scribbled and wrote down what I had to say. I had been trained and had experience enough so that I was at home in French and my lecture notes for a lecture would be eight or ten words on a card, each word representing a chapter heading that I was going to talk about. So I'd look at that and then I'd tell them in French what I had to say. They took every word and tried to memorize it, and their reading was handled the same way. They tried to memorize word for word. They could tell you which sentence was on which side of the page and so on. Strictly memory work with no great impetus to think about what they were taking but, could they remember it?

So I was a new breeze blowing into the classroom when I came along using another approach. But they treated me very well, invited me back another year and I accepted, and then the third year I had to go on with my Pandanus research and I took off.

A: Well, that was probably the way they were trained, just by rote and they weren't taught to think or analyze for themselves.

S: Yes, yes. They were good students and several graduate students were excellent. And I managed to have one graduate student offered a fellowship. He was interested in one family of plants, the Apocynaceae, and I had him sent to the George Washington University in St. Louis because there was a professor there who was outstanding in the study of that group. And after the student had been there for six months, he wrote and thanked me for sending him such an excellent student. And he persisted there and got a doctor's degree and came back and was reappointed to the staff of the University of Saigon and he still is there.

After Saigon, as I said, I travelled and went to the Indian Ocean and Africa and then continued on into Europe and went to Firenze, Florence, Italy and settled down there, because the previous worker on the genus Pandanus, Count Ugolino Martelli had been a professor there and his collections were there. And he had published on the genus for thirty-six years, and he got about fifty percent through

the genus with a rather brief treatment of each species that he worked with.

But he had managed to amass a tremendous collection of Pandanus. He never went into the field; he never collected a Pandanus in his life. He could have taken a boat down the coast of Africa; he could have taken a boat to India, to Malaya. He could have easily gotten into the areas where Pandanus grow. But he never had spunk enough to do that. I don't know why. I couldn't find out because he was a well-educated, distinguished man, he had plenty of money and I never heard that his wife held him back, but he didn't go.

He wrote letters to government officials, to missionaries, to traders, to anybody whose name he could hear of, and begged for specimens. And they sent him specimens from everywhere, from Africa to Hawaii to New Guinea, Rarotonga, all kinds of places. His collection was so big that it took me two and a half years to study it and work it over.

A: Oh, and you stayed in....

S: In two visits I stayed two and a half years. Giving the same treatment to the material on Pandanus in other big herbaria, it took me three months at Kew, K-E-W, in London, it took me three months in Paris, it took me three months in Leyden in the Netherlands, and those were the big collections and two and a half years in Florence. So he had a tremendous collection .

A: I had read about his collection and that you had worked on that.

S: Well, when I was in Florence, I was appointed a Fulbright professor to the University of Cairo in Egypt. They wanted me because I had recently published a book, a textbook for training students in the application of the laws of botanical nomenclature. There is a hundred page text in a book, the English text is a hundred pages. There are similar texts in French and German, application of the laws of nomenclature to be taught by the case method, the book listing several hundred cases which illustrated the application of those laws.

A: We covered that pretty thoroughly the last time, how you used that.

S: Well, I went down to teach that and I was asked to bring a dozen copies of my book down and a dozen copies of the international code of botanical nomenclature because they couldn't order them from Egypt for some reason. So I bought the books, and brought them down, and turned them over and the students and professors bought them.

My only duty there in Cairo was to teach a seminar course, one course meeting once a week, and I would assign a case to the students. I used that method, and they would report and when the student reported anybody could criticize and argue and finally, I had to come in and give my interpretation. It was an interesting group and it went on, and it contained the honor students. I think there were five honor students.

A: Did they speak English?

S: Yes, I taught it in English. I could have used French. French is the language of tea parties, of society; English is the language of commerce. Both are well known in university circles.

There were five honor students. That is, when they registered in the university, they had three years of regular university work. They got some sort of a degree, I suppose a bachelor's degree. Then the best students were invited to come back for a fourth year as honor students. They were good. There were some graduate students and then there were other professors and assistants. The professors were fairly good. Two of the graduate students were very good. The undergraduate students, the honor students, were the stupidest, laziest, most unresponsive students I have ever had in my life. From my point of view, the undergraduates all failed at the end of the course, but there was a change of schedule. I was leaving on a ship before the grades were reported and I dare say the chairman of the department passed them anyway, being honor students.

The University of Cairo at that time had 55,000 students. And there were three other universities in the city. Half of those students were in the law school. Twenty-five thousand lawyers wanted to be trained every year. (laughs)

A: That sounds like even more than Hawaii, doesn't it? Well, you've certainly covered all parts of the globe, haven't you?

S: I've been around.

A: Is there anything that you didn't see that you wished you had seen?

S: There are a few places. I've not been to Alaska, but then I worked in Labrador which is also Arctic. I've not done much in South America, only Colombia. Well, that covers the topics I've jotted down here. Can you think of something that you can suggest that I might talk about?

A: I was just thinking at this point of a kind of general, philosophical wind up. As I've said, everything that you've told me, ninety-nine percent of it, has been positive. Everything's been charming and lovely and pleasant and you just come across to me as a very, very positive person. Is this part of the philosophy of life or what?

S: Well, I've had setbacks, I've failed in things that I thought I was doing all right in, I've had people working at cross-purposes with me, but I don't think I care to go into those. I've had a good life, I've enjoyed it, I've had a fine family life and my intellectual interests have been that of a naturalist. I was trained at Harvard where they give doctor's degrees only in biology. They don't give degrees in botany or zoology, which two add up to biology. That is, I had to prepare myself in zoology as well as in botany and that is rarely done in these days.

Usually people who graduate in biology are actually graduating in zoology, zoologists trying to appropriate the term biology, which isn't quite the meaning of the term. Biology is the study of the science of life, all living things, not only animals. So I've been alert to zoological things.

A: But this stood you in good in numerous circumstances that you mentioned. So it's unfortunate that they don't combine them yet.

S: Well, no, I disagree with Harvard that they should now train only in biology. I think that's fifty years too late. Because a person who gets a doctor's degree with them immediately becomes either a zoologist or a botanist. Professionally has nothing more to do with the other. Unless his appointment is at a school so small that one man has to handle all biological sciences.

And that usually isn't so with the graduates of Harvard. They usually get a job with an institution that's been going long enough to have a lot of students and plenty of professors. I haven't practiced zoology at all since I graduated although I'm alert to butterflies, entomology, I'm alert to birds, I'm alert to mammals, to animals and I notice them when I meet them.

I remember one time in the Washington Cascades, I went up on a mountain called Sourdough Mountain. It's on the western fringe of the Cascades not very far from Seattle. I went up there and I found a lookout station, a forest fire lookout station on top, and I stayed there a couple of days and hiked around the mountain. And the western slope of the mountain from the summit down for a thousand feet was open country, grass, low shrubs, and lines of trees only along the

gulches, along the rivulets. And this was in September and the huckleberries were ripe.

I was working along that slope and following some trails as I went horizontally along the slopes looking for plants. I saw there were some bears around. They were after the huckleberries and I came to one of these gulches and the trail went down about fifteen or twenty feet. It was wet and I had to run to keep my footing. I got to the bottom and I looked up and a bear had come running down the other side and it looked up and it said, "Woof," and I said, "Oh," and he went one way and I went the other. (laughter) He was much more interested in huckleberries than he was in me.

A: Thank goodness, or we wouldn't be sitting here talking about it. (laughter) Well, I thank you so much. I've enjoyed it.

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THE WATUMULL FOUNDATION ORAL HISTORY PROJECT

The Watumull Foundation Oral History Project began in June of 1971. During the following seventeen months eighty-eight people were taped. These tapes were transcribed but had not been put in final form when the project was suspended at the end of 1972.

In 1979 the project was reactivated and the long process of proofing, final typing and binding began. On the fortieth anniversary of the Watumull Foundation in 1982 the completed histories were delivered to the three repositories.

As the value of these interviews was realized, it was decided to add to the collection. In November of 1985 Alice Sinesky was engaged to interview and edit thirty-three histories that have been recorded to mark the forty-fifth anniversary of the Foundation.

The subjects for the interviews are chosen from all walks of life and are people who are part of and have contributed to the history of Hawaii.

The final transcripts, on acid-free Permalife bond paper and individually Velo-bound, are deposited and are available to scholars and historians at the Hawaii State Archives, the Hamilton Library at the University of Hawaii and the Cooke Library at Punahou School. The tapes are sealed and are not available.

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